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In the Matter of

Preparation for International)
Telecommunication Union World) IC Docket No. 94-31
Radiocommunication Conferences)

REPORT

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I. INTRODUCTION

1. This Report provides the Commission's recommended U.S. Proposals for the 1995 World Radiocommunication Conference (WRC-95) to be convened by the International Telecommunication Union (ITU) from October 23 to November 17, 1995 in Geneva, Switzerland. We seek at WRC-95 to improve the international spectrum allocations and related measures necessary for the successful introduction of the global Mobile-Satellite Service (MSS), including low-Earth orbit (LEO) satellite networks. These actions will foster implementation of LEO and other MSS networks and their inauguration of worldwide, cost-efficient voice and data mobile communications services. These satellite networks, including LEOs licensed by the Commission, promise to spur a multi-billion dollar U.S. industry and to form an integral segment of the Global Information Infrastructure.

2. Our primary proposals for WRC-95 seek to designate spectrum for MSS feeder links, to obtain additional global spectrum allocations for MSS service links, and to reduce the technical and operational constraints on current global MSS allocations.[1] We also address the simplification of the international Radio Regulations and the other issues on the conference agenda, including space services, international satellite orbit allotment plans, high frequency broadcasting and future conference agendas.[2]

II. BACKGROUND

3. Notices of Inquiry. In this proceeding, the Commission has sought the public's comment on the technical, operational, regulatory, and procedural aspects of the topics on the WRC-95 agenda, the main focus of which is on MSS.[3] We also invited comment on ways in which the Commission can best structure its own conference preparatory processes in light of the ITU's new, two-year accelerated conference cycle, to ensure timely and effective planning for WRC-97 and beyond. Our Notice of Inquiry reviewed the results of WRC-93 and requested comments on the topics proposed for the WRC-95 agenda. Based on these comments and on the ongoing work of the IAC and other preparatory groups, we released a Second Notice of Inquiry seeking comment on draft recommended U.S. proposals for WRC-95 and on the IAC's Interim Report.[4] [5]

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[1] Our recommended U.S. Proposals, attached at Appendix 1, are based on the work of our WRC-95 Industry Advisory Committee (IAC), comments received in response to our Notices of Inquiry, and our participation in international preparatory activities for WRC-95.

[2] A copy of the WRC-95 agenda is provided at Appendix 2.

[3] See Notice of Inquiry, 9 FCC Rcd 2430 (1994); Second Notice of Inquiry, 10 FCC Rcd 4169 (1995).

[4] A list of commenters to the Second Notice is provided in Appendix 3.

[5] By Order, DA 95-421, released Mar. 6, 1995, we extended the date for filing reply comments to the Second Notice to afford the parties an opportunity to comment on the results of CPM-95. In Order, DA 95-945, released Apr. 27, 1995, we declined to grant a further extension of time requested by several Little LEO licensees and applicants. A motion for acceptance of late-filed reply comments was filed by Alcatel Network Systems, Inc. and other Fixed Service interests on May 15, 1995. We will

4. WRC-95 Industry Advisory Committee. As a further means of preparing for the conference, we established the WRC-95 Industry Advisory Committee to develop independent private sector proposals for consideration by the Commission in parallel with this proceeding.[6] The IAC is chaired by a member of the private sector and has an open membership. Its meetings feature broad participation by members of the public and include regular attendance by representatives of other federal government agencies. The of work the IAC is organized into six Informal Working Groups (IWGs): IWG-1 on regulatory coordination; IWG-2 on MSS below 1 GHz; IWG-3 on MSS above 1 GHz; IWG-4 on MSS feeder links; IWG-5 on space sciences; and IWG-6 on future conference agendas. The results of the IWGs' work were consolidated into an Interim Report, issued December 30, 1994, and the IAC Final Report, of May 4, 1995.[7] The IAC's views and recommended proposals expressed in its Final Report are incorporated throughout this Report.

5. Conference Preparatory Meeting. Preparations for WRC-95 have also been underway internationally in the Study Groups, Working Parties, and Task Groups of the ITU's Radiocommunication Sector (ITU-R). Under the ITU's new conference cycle, preparatory studies for each WRC are carried out by a Conference Preparatory Meeting (CPM), that holds two meetings before each conference.[8] CPM-94 organized and coordinated the work to be performed by the technical groups in preparation for WRC-95 and drafted the outline of the CPM Report to WRC-95. The resulting studies and recommendations were forwarded to and considered by CPM-95, which met from March 22 to April 5, 1995. This work was ultimately consolidated into the final CPM Report.[9] The CPM Report is a comprehensive technical report that is intended to represent the ITU-R's best available information on the technical, operational and regulatory/procedural issues relevant to the WRC-95 agenda.[10] Commission staff, U.S. industry, and other U.S. government agencies actively participated in the CPM and in the underlying work of the technical groups. The information and conclusions expressed in the CPM Report largely support U.S. views, positions, and goals for WRC-95.

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grant their request.

[6] See Public Notice, Notice of Advisory Committee Establishment, released May 25, 1994.

[7] FCC Industry Advisory Committee for the ITU 1995 World Radiocommunication Conference Final Report, May 4, 1995. A copy of the IAC Final Report has been associated with the docket file in this proceeding and is available on the INTERNET. See News Release, WRC-95 Industry Advisory Committee Issues Final Report, released May 8, 1995.

[8] Resolution ITU-R2 (Geneva, 1993).

[9] CPM Report on Technical, Operational and Regulatory/Procedural Matters to be Considered by the 1995 World Radiocommunication Conference (CPM Report), (Geneva, 1995).

[10] Res. ITU-R2 also directed that preparatory studies for the regulatory/procedural matters associated with a WRC agenda are to be performed by a Working Party of the CPM (WPCPM). The WPCPM for WRC-95 met in Jan., 1995 and at CPM-95.

III. MOBILE SATELLITE SERVICE

6. The Commission's primary goal at WRC-95 is facilitating the introduction and future expansion of new mobile-satellite technologies, including Below 1 GHz MSS networks, commonly referred to as the Little LEOs or Non-Voice Non-Geostationary (NVNG) systems, and Above 1 GHz MSS networks which include Big LEO systems. We envision accomplishing that goal by taking three steps: 1) eliminating regulatory and technical constraints on existing but unused MSS allocations;[11] 2) obtaining spectrum for feeder links to support MSS service links;[12] and, 3) based on market projections for consumer demand for licensed MSS networks and requests of the Commission to authorize additional spectrum for new MSS networks, proposals for allocating additional MSS spectrum. In the Second Notice, we made preliminary proposals based on ongoing technical work in the international fora, discussions with the National Telecommunications and Information Administration (NTIA), comments to the first Notice in this proceeding, and the work of the Commission's IAC. Based on the comments, discussions, and further work that followed, including issuance of the IAC Final Report and the CPM Report, we recommend the following U.S. proposals on MSS matters for WRC-95.

A. MSS Below 1 GHz

7. Technical Constraints. We propose to remove existing technical constraints that will hinder the development of Below 1 GHz MSS networks. These constraints are: RR 608A, a footnote applied to the 148-149.9 MHz band that limits the power of a MSS system's mobile earth terminals when transmissions cross national boundaries; and, RR 608B, a footnote applied to the 149.9-150.05 MHz band that limits the power of a land mobile satellite service system's mobile earth terminals when transmissions cross national boundaries. In the Second Notice, we proposed to eliminate these constraints by replacing the power limits in the footnotes with a coordination threshold distance methodology to trigger the need to coordinate at national boundaries.[13]

8. MSS proponents and the IAC support removing these constraints on MSS.[14] Further, the CPM concluded that these restrictions are unnecessary. Addressing the power limit in RR 608A, the CPM considered a number of alternatives, but determined that the power limits in both RR 608A and RR 608B should be replaced by a coordination distance methodology to determine the need to

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[11] Primarily those made at WARC-92.

[12] WARC-92 did not make specific feeder link allocations to support MSS service links. Service links are the radio spectrum used to provide communications from the satellite to the consumer. Feeder links are the radio spectrum used to feed information from other networks, such as the public switched network via gateway stations, to the satellite and then on via service links to the consumer. An MSS service link allocation without appropriate feeder link allocations would be analogous to an automobile without an engine.

[13] Second Notice, 10 FCC Rcd at 4175-76. MSS operators would be required to coordinate with other administrations falling within a specified distance of its mobile earth terminal operations.

[14] See, e.g., E-Sat comments at 1; LEO-One comments at 12. See also, IAC Final Report at 109.

coordinate with potentially affected administrations.[15]

9. The power limits in RR 608A and RR 608B will cause considerable operational difficulties for new MSS systems. For example, a mobile earth terminal power output greater than the value specified in the existing footnotes may be necessary for successful operation of the mobile earth terminals within a country's borders. Due to the roaming nature and intended ubiquitous operations of the mobile earth terminals, it would be extremely difficult to ensure this limit is not exceeded immediately outside an operating country's borders. Further, the CPM notes that the ITU Radiocommunication Bureau has not established any guidance on the appropriate calculation methodology to determine the footnote power limits. The coordination distance methodology is a more practical approach for determining where mobile earth station terminal coordination is necessary. In their current formulation the existing footnotes are, in effect, unworkable. We therefore propose to modify RRs 608A and 608B by replacing the current power flux density limits with the coordination distance methodology given in Draft new ITU Recommendation ITU-R M. [Doc. 8/46]. See Appendix 1, Section A, USA/ / 7 and USA/ /8.

10. Allocation Constraints. WARC-92 adopted allocation constraints on bands available for Below 1 GHz MSS to protect existing users. In the 137-138 MHz band, the meteorological satellite (metsats), space operation and space research services have primary allocation status.[16] In certain segments of the 137-138 MHz band MSS also has a primary allocation status.[17] We noted in the Second Notice that NOAA has commitments worldwide to operate metsats in the band until at least the year 2006. In its Interim Report, the IAC recommended phasing out metsats in one segment of the band where MSS has a co-primary allocation status.. We accepted that recommendation but expanded it to include phasing out metsats in the 137-138 MHz band wherever MSS has co-primary allocation status.[18] Specifically, metsats would be co-primary until the year 2006 and secondary until the year 2010. We also invited comment on the continued need for primary space operation and space research services allocations in the subject bands.[19]

11. MSS parties support a metsat phase-out. Starsys urges the Commission to work with the National Oceanic and Atmospheric Administration (NOAA) and the Department of Defense (DoD) to facilitate moving metsats to other unspecified bands.[20] ORBCOMM supports our proposal to change the allocation status of metsats to reflect a move to other bands and requests the Commission to seek a short transition period.[21] The IAC also endorses the Second Notice proposals and maintains

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[15] CPM Report at 13.

[16] Second Notice, 10 FCC Rcd at 4176.

[17] Specifically, in the 137-137.025 MHz and 137.175-137.825 MHz segments of the entire band.

[18] Second Notice, 10 FCC Rcd at 4176.

[19] Id.

[20] Starsys comments at 4-5.

[21] ORBCOMM comments at 5; see also CTA comments at 16-17.

that NVNG MSS systems can share with metsats, space operation and space research services in the 137-138 MHz band.[22]

12. NOAA previously indicated that it would have continuing operations in the 137-138 MHz band until the year 2010.[23] NOAA now states that metsat downlinks may continue indefinitely in this band and, therefore, that protection must continue to be provided.[24] NOAA also claims that existing satellites that use frequencies in the middle of the 137-138 MHz band will continue operations until 2010. Further, it maintains that system design changes resulting from a planned convergence of NOAA satellites with DoD metsats makes phase-out dates uncertain.[25]

13. In light of NOAA's comments, we propose that the metsat, space research and space operations services continue on a primary basis in the 137-138 MHz band. The Commission, in concert with below 1 GHz MSS proponents, recognizes the importance of metsat operations and the attendant necessity for protecting continuing metsat operations during a phase-out period. As plans for migrating metsats, space research and space operations out of band segments where MSS is co-primary become more concrete, it may be possible to delete unused allocations and allow MSS networks to gain unencumbered spectrum where they can develop.

14. WARC-92 allocated the 149.9-150.05 MHz band to the land mobile-satellite service on a co-primary basis with other band users. We proposed in the Second Notice that this band be allocated generally to MSS. This type of allocation would encompass all mobile satellite services -- land or otherwise.[26] NVNG MSS parties and the IAC support a general MSS spectrum allocation.[27]

15. Most entities recognize that limited spectrum and the expense of launching a satellite service dictate that economies be taken wherever possible. A satellite platform is not limited inherently in the user classes it can serve. Consequently, once launched, that platform can provide service to land, maritime and even aeronautical users. A general MSS allocation allows user demand to determine the mix of services within a given spectrum allocation. This is efficient use of a limited resource. Additionally, this type of allocation modification is in keeping with the VGE's principle of making allocations to as broad a service classification as possible and with the U.S.'s principle of proposing broad flexible allocations. Accordingly, we maintain our Second Notice proposal to allocate the 149.9-150.05 MHz band to MSS generally. See Appendix 1, Section A, USA/ /2 - USA/ /3.

16. Spectrum Requirements and Proposed Allocations. In its Interim Report, the IAC

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[22] IAC Final Report at 90-93.

[23] See Second Notice, 10 FCC Rcd at 4176.

[24] NOAA comments at 4-5.

[25] NOAA reply comments at 2-4.

[26] Second Notice, 10 FCC Rcd at 4177.

[27] See, e.g., E-SAT comments at 1-2; GE comments at 17. See also IAC Final Report at 102, 104.

indicated a need for at least an additional 7-10 MHz of spectrum for Below 1 GHz MSS by the year 2000 and an additional 13-20 MHz by the year 2010.[28] In the Second Notice, we published a table provided by the IAC of potential frequency bands for Below 1 GHz MSS allocations. However, because there was not consensus among affected parties on the future use of the bands in the table, we only proposed one band, 399.9-400.05 MHz, for a new worldwide MSS allocation.[29]

17. MSS proponents continue to express a need for an additional 10 MHz of spectrum by the year 2000. They emphasize that having spectrum available for use by that date requires immediate allocations beginning at WRC-95. The MSS parties suggest various frequency bands for potential WRC-95 allocations. In its Final Report, the IAC notes that newly allocated spectrum is typically not available for operational use until five years following allocation.[30] It further indicated that specific proposals for spectrum allocations would be submitted after further analyses.[31]

18. Existing users of bands identified in the Interim Report table express concern about the impact new MSS operations would cause on their services. The Amateur Radio Relay League (ARRL), Association of American Railroads (AAR), APCO, Motorola, and Utilities Telecommunications Council (UTC) generally maintain that below 500 MHz frequency bands identified in the IAC's table are now heavily used and cannot support NVNG MSS operations.[32] Further, AAR contends that NVNG MSS proponents do not adequately address second generation NVNG MSS systems that would offer a broader range of services and would require longer transmission periods. This could worsen the interference potential in shared bands.[33]

19. In the current radiofrequency spectrum environment in which there are burgeoning services and uses but little fallow useable spectrum, accommodating new technologies and services will almost always affect incumbent spectrum users. Although this is usually unavoidable, it is not an insurmountable obstacle to pursuing new allocations and introducing new services. Since the release of the IAC Final Report, NVNG MSS proponents have continued their analyses of potential frequency bands and have reported to us a total of 10 MHz of spectrum that they recommend for immediate proposal to WRC-95: 216.5-217 MHz and 217.5-218 MHz (space-to-Earth), 386-390 MHz (space-to-Earth), 399.9-400.05 MHz (Earth-to-space), 420-422 MHz (Earth-to-space), 450-451 MHz (Earth-

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[28] IAC Interim Report at 65.

[29] The 399.9-400.05 MHz was allocated in January 1993 for MSS in the U.S.and is available for that use as of 1 January 1997. Our Second Notice proposal would extend that use worldwide. 10 FCC Rcd at 4248. That proposal was non-controversial. We are maintaining that proposal in this document. It appears as Appendix 1, Section A, USA/ /9.

[30] IAC Final Report at 84. The Final Report also includes estimates for future MSS Below 1 GHz spectrum requirements.

[31] Id. at 108.

[32] See, e.g., ARRL reply comments at 2; AAR reply comments at 8; Motorola reply comments at 19-24; UTC comments at 3-7.

[33] AAR reply comments at 9.

to-space), 455-456 MHz (Earth-to-space) and 459-460 MHz (Earth-to-space).[34] Of these bands, and other subsequently recommended bands, we propose today that the following frequencies be allocated internationally to MSS:[35]

Table 1.

Bands Proposed for Worldwide MSS Below 1 GHz

Frequency Band	Bandwidth	Proposed Use	Direction
216-216.5 MHz	0.5 MHz	Non-GSO gateway earth station operations, Service links	space-to-Earth
217.5-218 MHz	0.5 MHz	Non-GSO gateway earth station operations, Service links	space-to-Earth
399.9-400.05 MHz	0.105 MHz	Service links	Earth-to-space
401-404 MHz	3 MHz	Service links	space-to-Earth
455-456 MHz	1 MHz	Service links	Earth-to-space
459-460 MHz	1 MHz	Service links	Earth-to-space

20. The bands 216-218 MHz and 219-220 MHz, which encompass the system proponents' suggested downlink bands at 216-216.5 MHz and 217.5-218 MHz, are currently allocated to the Maritime Mobile service on a primary basis. Use of these bands by government and commercial interests appears relatively sparse,[36] and the MSS system proponents state that careful siting of their few gateway earth stations, as well as imposition of appropriate power flux density limits, can eliminate problems of unacceptable interference from and into MSS operations. Some commenters note that use of the 216-216.5 MHz band is under consideration in a pending rulemaking proceeding

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[34] Supplemental Reply Comments (Joint Comments) of CTA Commercial Systems, Inc., E-Sat, Inc., Final Analysis Communication Services, Inc., GE American Communications, Inc., Leo One USA Corporation, Orbital Communications Corporation, Starsys Global Positioning, Inc. and Volunteers in Technical Assistance, May 18, 1995.

[35] *See* Appendix 1, Section A, USA/ /7 - USA/ /17.

[36] Joint Comments at 15.

for auditory and health care assistance devices and other low power services.[37] They suggest that MSS not be authorized until after such time as the domestic uses of this band are finally determined and adequate protections are established. We are confident, however, that MSS power flux density limits can be devised to protect low-power, localized devices, such as those described by the commenters. If such protection is necessary, appropriate restrictions will be imposed in the course of the domestic allocation process which would be required to implement any international allocation, and therefore need not finally be resolved at this time. This domestic proceeding would ensure that MSS systems could share in these bands without causing harmful interference to other domestically allocated services. Accordingly, we will go forward at this time to propose the allocation of the 216-216.5 MHz band to MSS.

21. Waterway Communications Systems, Inc. and Paging Systems, Inc., entities which offer service to the maritime community over the Automated Maritime Telecommunications System (AMTS) in the 217.5-218 MHz band, allege that the AMTS is heavily used and that MSS operations will harmfully interfere with that service. Again, we conclude that downlink power flux density limits can be devised to protect the AMTS from harmful interference. Because feeder link flux density limits can be more restrictive than those for service links due to the use of high gain antennas at the feeder link earth stations, it may be necessary to restrict the use of both of these bands in the United States to MSS feeder link operations. Such concerns can be fully addressed in the domestic allocation process.

22. In addition to the concerns of in-band users, a number of out-of-band issues exist. For example, a Navy SPASUR radar operates on the frequency 216.98 MHz (± 1 kHz) and MSS feeder downlinks may provide out-of-band emissions to this band and may have a potential to cause unacceptable interference to the other users in adjacent bands from out-of-band emissions. However, system proponents are of the view that sharing between the SPASUR system and MSS gateway earth station links can be successfully accomplished.[38] MSS operations in these bands would also be adjacent to television Channel 13 (210-216 MHz), but the NVNG MSS proponents state that earth stations can be located a sufficient distance from television stations to minimize interference. We concur with this preliminary analysis and propose allocation of these frequencies for MSS.

23. The 387-390 MHz band, which is allocated for government use, is allocated to MSS on a secondary basis in all three Regions. It is thus particularly desirable for use by inherently global satellite systems, such as those proposed by LEO MSS proponents. MSS system proponents believe that this band is technically suitable for a shared allocation for a number of reasons. The existing users, however, disagree, and have proposed that the 401-404 MHz band be considered for a downlink allocation instead. Based on our understanding of the use of these frequencies, we concur

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[37] Notice of Proposed Rule Making in WT Docket 95-56, Amendment of the Commission's Rules Concerning Low Power Radio and Automated Maritime Telecommunications System Operations in the 216-217 MHz Band, FCC 95-174, released May 16, 1995. See Phonic Ear, Inc. comments; ProNet, Inc. comments.

[38] Joint Comments at Appendix B.

that the 401-404 MHz band appears suitable for allocation to MSS service downlinks.[39] See Appendix 1, Section A, USA/ /10 - USA/ /14.

24. As stated in the Second Notice, we also propose the allocation of the 399.9-400.05 MHz frequency band to MSS in the Earth-to-space direction. While commenters note that they would like the flexibility to use this band in either the Earth-to-space or space-to-Earth direction, they have submitted no analyses supporting the ability of MSS systems to use this band in both directions. Because we do not have a clear indication of which direction is preferred by system proponents, we will submit our original proposal that this MSS allocation be specified for use in the Earth-to-space direction.

25. MSS system proponents suggest a gateway earth station uplink in the 450-451 MHz band, which is currently allocated for broadcast auxiliary use.[40] Again, the proponents assert that the usage of this band is low, based on their analysis of authorized transmitters in the band, as well as results of frequency monitoring performed by the parties. System proponents allege that by employing a combination of dynamic channel avoidance, low duty cycles, brief message duration and geographical separation, sharing with broadcast auxiliary services can be accomplished successfully. The most significant source of potential interference to MSS operations in this band is the proposed allocation of the adjacent 448-450 MHz band to use by wind profiler radars. For reasons discussed at greater detail in their Joint Comments, the system proponents believe that geographic separation and service avoidance can successfully be employed to overcome such potential interference into and from wind profiler radars.[41] Upon examination of the analysis presented, however, we are not convinced that sharing is possible. The use of adjacent bands by a significantly large population of extremely high powered radars is likely to cause unacceptable interference into the MSS satellite receivers. Absent a more compelling showing that sharing is possible, we will not propose this band for allocation.

26. Finally, the system proponents suggest that the 455-456 MHz and 459-460 MHz bands be proposed for MSS service uplinks at WRC-95. The 455-456 MHz band is presently used by the broadcast auxiliary service for remote pickup. The 459-460 MHz band is assigned to the Domestic Public Land Mobile Radio Service (DPLMRS). System proponents point out that ITU Task Group 8/3 concluded that MSS uplinks can successfully share with terrestrial mobile services by using dynamic channel assignment or low power Code Division Multiple Access (CDMA) spread

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[39] System proponents requested 4 MHz of downlink spectrum at 386-390 MHz. Because we are not proposing the allocation of the 387-390 MHz band, we will not propose allocation of the 386-387 MHz band either. System proponents have also suggested that the band 420-422 MHz, another government band, may be suitable for allocation as an MSS service uplink. It is our understanding that high-powered airborne and surface radars operating in nearby bands will make sharing extremely difficult. Further, ARRL notes that this band is used by amateur radio operators for ATV operation and fixed repeater links, which may be incompatible with MSS operations. Without further study of the existing use of 420-422 MHz band, we will not propose at this time that the band be allocated to MSS.

[40] 449.75-450.25 MHz may also be used for the space operation service and space research service in the Earth-to-space direction.

[41] Joint Comments at 14.

spectrum systems. The American Petroleum Institute (API), supported by comments submitted jointly on behalf of a number of private land mobile radio user organizations, suggests that MSS operations will be incompatible with API's use of a 25 kHz uplink channel at 459 MHz. This channel is primarily used for communications directly related to oil spill and containment operations, and is secondarily available for general base-mobile operations on a non-interference basis. The channel is lightly used, API maintains, so that it will be clear when required for communications related to containment operations. This channel is already available for shared use, if the alternative use is transparent. We believe that the technical analyses presented by the system proponents corroborate that channel assignment and low power techniques, in conjunction with brief message duration and geographical separation similar to those adopted by the Commission in § 2.106, Table of Allocations, for other frequency bands, can be used successfully to assure that oil spill containment operations are not adversely affected.[42] These techniques will also, we believe, protect broadcast auxiliary uses. We therefore propose to allocate the 455-456 MHz and 459-460 MHz bands in the Earth-to-space direction.

B. MSS Above 1 GHz

27. Technical Constraints. Technical constraints that could hinder implementing MSS have been identified in this proceeding and in the ITU-R process. In the Second Notice we proposed to remove several of these constraints. Specifically we proposed to clarify whether MSS power density limits specified in RR 731E[43] that apply to the 1610-1626.5 MHz band are referenced to a "peak" or to a "mean" value. We also proposed to relax the MSS power density limits referenced in RR 753F[44] that are used to trigger coordination. We also asked whether RR 733E, applied to the 1613.8-1626.5 MHz band to protect radio astronomy operations in the adjacent 1610.6-1613.8 MHz band, should be suppressed or modified.[45]

28. Concerning RR 731E, we proposed to reference the power density limits in RR 731E as a "mean" rather than a peak value. We also proposed that language in RR 731E providing protection to the aeronautical radionavigation service (ARNS) to stations operating in accordance with RR 732, and to fixed service stations operating in accordance with RR 730 be deleted and replaced with a reference to RR No. 953.[46] We noted that many contend that this language places MSS networks in a de facto secondary status relative to other services. We noted that RR No. 953, in conjunction with the coordination requirements of Resolution 46, provides sufficient protection to the

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[42] Id. at 12 & Appendix A.

[43] Second Notice, 10 FCC Rcd at 4177-78.

[44] Id. at 4180-81.

[45] Id. at 4178-80. We have adopted rules domestically to protect Radio Astronomy operations in this band. See In the Matter of Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Mobile Satellite Service in the 1610-1626.5/2483.5-2500 MHz Frequency Band, 9 FCC Rcd 5936 (1994)(hereinafter "Big LEO Report").

[46] RR No. 953 of Article 9 of the international Radio Regulations cautions administrations to be cognizant of radionavigation and safety services when making frequency assignments.

aeronautical radionavigation services from MSS services operating on a co-primary basis in the 1610-1626.5 MHz band.[47]

29. Generally, MSS parties support clarifying the RR 731E power density limits and removing the language that provides specific protection to non-MSS services. However, they disagree on whether those power density limits should be referenced as a "peak" or as a "mean" value. The CPM recognized the ambiguity of the values given in RR 731E and decided that the power density limit that applies where stations are operating in accordance with RR 732 should be a "peak" value[48] and that the limit that applies elsewhere should be a mean value.[49] The IAC, many of whose members participated in the CPM, recommends this approach. It also recommends deleting the language giving specific protection to ARNS.[50]

30. We propose to modify RR 731E by specifying a "peak" power density limit in parts of the band used by systems operating in accordance with RR No. 732, and a "mean" power density limit in other parts. We also propose to delete the language specifying additional protection of non-MSS services in the band. Protection under RR No. 953 should be sufficient. The CPM Report supports this action, and the record in this proceeding reveals no opposition to our proposals.[51] See Appendix 1, Section B, USA/ /14.

31. RR 753F references power flux density limits contained in RR No. 2566 as a trigger for initiating coordination between space stations of the mobile-satellite and terrestrial services. We have expressed concern that this limit may be too stringent and could result in unnecessary coordinations.[52] We proposed in the Second Notice to modify RR 753F by replacing the reference to RR No. 2566 with increased limits specific to RR 753F.[53]

32. TRW and LQP and others support our proposal.[54] The CPM considered the RR 753F limits and agreed that the current limits may be more stringent than necessary for initiating

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[47] Second Notice, 10 FCC Rcd at 4178 With respect to other non-MSS services operating in the band, Res. 46 provides a mechanism to resolve potential interference conflicts.

[48] This would provide a measure of control over the maximum MSS power level an ARNS station would "see."

[49] CPM Report at 17.

[50] IAC Report at 156-57.

[51] Parties indicate they can support the CPM proposal, even those whose initial comments differed. See, e.g., LQP reply comments.

[52] Second Notice, 10 FCC Rcd at 4180.

[53] Id. at 4180-81.

[54] TRW comments at 8; LQP comments at 10-11.

coordinations to protect terrestrial services.[55] The National Academy of Sciences (NAS) contends the new limits could result in out-of-band interference to radio astronomy in the 4900-5000 MHz band. Therefore, it maintains that cautionary language urging MSS operators to take all practicable steps to protect radio astronomy should be added.[56]

33. We will adopt as proposed the less stringent limits recommended by the CPM.[57] This should reduce unnecessary coordinations. We will also propose cautionary language that provides protection to radio astronomy in the 4900-5000 MHz band.[58] Our modified proposal appears in Appendix 1, Section B, USA/ /34.

34. In the Second Notice, we declined to propose to suppress or modify RR 733E as requested by some parties. We did, however, suggest that rules to protect Radio Astronomy, similar to the ones we adopted in the Big LEO Report, could be proposed as an international standard.[59]

35. MSS parties did not support our suggestion that the Big LEO radio astronomy rules be proposed internationally, noting that the criteria developed in the Big LEO Report should be considered unique to our domestic situation. Instead, they argue that RR 733E is redundant when both services are co-primary and, therefore, it should be suppressed. NAS argued strongly against suppressing the note. NAS maintains that under the broad protection of RR 733E interference determination and negotiations can be done on a case-by-case basis.

36. It may not be appropriate in this case to propose internationally protection criteria that were developed purely to address the domestic environment. However, radio astronomy operations in the 1610.6-1613.8 MHz band should be afforded some degree of protection. RR 733E provides recognition of the special needs of radio astronomy and remains the appropriate mechanism for ensuring that service is protected. Furthermore, it is not redundant as applied to out-of-band emissions from MSS and RDSS stations operating in bands adjacent to the 1610-1610.6 MHz and 1613.8-1626.5 MHz bands. Therefore, we decline to suppress RR 733E.[60]

37. Allocation Constraints. The 1525-1559 MHz and 1626.5-1660.5 MHz bands are currently structured such that various portions of the bands are allocated to specific types of MSS

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[55] CPM Report at 17-19.

[56] NAS comments at 12.

[57] As LQP correctly observes, these limits are intended to be applied on a "per station" basis. See Recommendation ITU-R IS.[Document 2/6], "Sharing in the 1-3 GHz frequency range between the non-geostationary space stations operating in the mobile-satellite service and the fixed service" at Table 1 and Annex 1, § 1.1.

[58] The concerns NAS raises have already been addressed domestically in the Big LEO Report.

[59] Second Notice, 10 FCC Rcd at 4179-80.

[60] We note, too, that Motorola and Iridium have retracted their earlier positions that RR 733E be suppressed. See Letter from Motorola and Iridium, May 19, 1995.

operations.[61] This is not in harmony with the goal recognized in the VGE Report of making broad flexible spectrum allocations. We proposed in the Second Notice to revise the entire structure of the bands to a general MSS allocation.

38. All MSS parties support our proposal.[62] The IAC also recommends proposing generic allocations in these bands.[63] We propose that these bands be allocated for MSS. These proposals are similar to U.S. proposals to WARC-92 for MSS in these bands, and are consistent with allocation principles of the U.S. in past conferences and of the VGE's latest recommendations. There are also consequential changes to footnotes associated with the bands. These proposals appear in Appendix 1, Section B, USA/ /1 - USA/ /22.

39. Spectrum Requirements and Proposed Allocations. The ITU-R developed estimates of future MSS spectrum requirements that call for up to an additional 103 MHz (in each transmission direction) by the year 2005. To begin to address this future spectrum shortfall we proposed in the Second Notice to make the 1675-1710 MHz available for MSS on a co-primary basis worldwide.[64] We also proposed to adjust 2 GHz MSS allocations made at WARC-92 in order to take account of the recent 2 GHz PCS allocation that affected the availability of WARC-92 MSS spectrum in the United States.[65] Specifically, we proposed to make the 1985-2025 MHz and 2165-2200 MHz bands available for MSS on a worldwide primary basis. These proposals would allow for possible expansion of licensed systems or accommodation of new global satellite networks. Additionally, the Commission has been requested to pursue worldwide allocations around 20 GHz and 28 GHz for NGSO FSS/MSS networks.[66]

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[61] *I.e.*, aeronautical-mobile, maritime-mobile, land-mobile, *etc.* See Second Notice, 10 FCC Rcd at 159-67.

[62] AMSC also supports application of RR 726C, which requires priority access and immediate availability of channels for safety communications, to the 1525-1530 MHz band. Whether to include a footnote imposing such a requirement domestically in the U.S. table of allocations is the subject of another proceeding. See First Report and Order/Further Notice, 8 FCC Rcd 4246 (1993). To preserve flexibility in this allocation, we are not proposing an international footnote. However, this action is in no way intended to foreclose a U.S. action imposing this requirement on domestic licensees.

[63] IAC Final Report at 159-64.

[64] WARC-92 made a co-primary allocation for Region 2 only. The meteorological-satellite and meteorological aids services also have co-primary allocations within the band. Our proposal was contingent upon the satisfactory completion of sharing studies and sharing criteria for the use of this band.

[65] See Memorandum Opinion and Order, 9 FCC Rcd 5947 (1994).

[66] Teledesic comments at 4-12.

40. Many MSS parties support our proposal for the 1675-1710 MHz band.[67] The CPM addressed sharing among MSS and the meteorological-satellite and meteorological aids services for which the band is also allocated. It concluded that sharing with the meteorological-satellite service is possible under certain conditions,[68] and that sharing with the meteorological aids service requires further study.[69] The IAC recommends that consideration be given to extending the current Region 2 MSS allocation in the 1675-1710 MHz band to all three Regions.[70] It includes this band in its recommended proposals. Several government agencies, and in particular the National Oceanic and Atmospheric Administration, oppose proposing any changes in the current allocation until studies examining the effect of MSS operations in the band are completed.

41. We will not propose any changes in the 1675-1710 MHz allocation at this time. Although substantial work has been completed regarding sharing between meteorological-satellite and MSS,[71] additional studies will be required to address sharing with meteorological aids.[72] A reasonable amount of time should be allowed for completion of those studies in order to ensure that any proposal advanced will not include unduly burdensome allocation constraints.[73]

42. We will, however, continue to advance the 2 GHz MSS allocation adjustment proposals of the Second Notice with a single slight modification. We originally proposed a 5 MHz overlap, from 1985-1990 MHz, of the spectrum allocated for PCS in the U.S. spectrum, and a corresponding 5 MHz segment at 2160-2165 MHz.[74] We noted that this spectrum may be usable outside the U.S. and, therefore, useful in future satellite coordinations. However, since the 1985-1990 MHz segment may not be usable for co-primary MSS in the U.S., we are eliminating both 5 MHz co-primary MSS segments from our proposal.

43. Most parties support this proposal but note that transition plans need be developed for

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[67] AMSC comments at 11; Iridium at 17-18. CMC states that as there is no companion band in the downlink direction, it is unlikely this allocation can be made. It suggests allocating a portion of the 1492-1525 MHz band as a companion downlink band.

[68] See CPM Report at 30.

[69] See id. at 29.

[70] IAC Final Report at 152.

[71] See Draft New Recommendation ITU-R SA.[Document 7/14].

[72] Completion of such studies has been designated an urgent matter for the ITU-R. See ITU RES213 (WARC-92).

[73] We also note that the 1492-1525 MHz uplink band with which this band is paired has significant allocation constraints that may not be easily addressed through sharing criteria. See CPM Report at 28.

[74] Second Notice, 10 FCC Rcd at 4201-04.

affected services.[75] That is, there should be a mechanism in place to transition existing users out of spectrum that is re-allocated to MSS. These types of issues are being considered in a proceeding to allocate 2 GHz spectrum for MSS domestically. It is inappropriate to advance domestic transition requirements in international proposals,[76] particularly since other administrations may require, or may choose, different transition plans. We recommend a U.S. proposal to add a worldwide primary MSS allocation from 2010-2025 MHz and to add for Regions 1 and 3 a primary allocation from 2165-2170 MHz. As a result there would be 35 MHz of spectrum worldwide in each direction of transmission, that is 1990-2025 MHz (uplink) and 2165-2200 MHz (downlink).[77] The 2 GHz MSS allocation proposals appear in Appendix 1, Section B, USA/ /29, USA/ /33.

44. At WARC-92, different dates of entry into force of 2 GHz allocations were agreed upon. RR 746C provides an entry date of 1 January 1996 for the United States and several other administrations. RR 746B specifies an entry date of 1 January 2005 for all other administrations. There is interest on the part of other administrations and entities, both U.S. and non-U.S. on aligning these dates to one around the year 2000.[78] Conversely, at the CPM some administrations with extensive fixed service use in 2 GHz bands expressed an interest in pushing the RR 746B date to a later one.

45. We stated in the Second Notice that consideration of these dates should be in the context of overall consideration of 2 GHz MSS spectrum allocations.[79] We intend to maintain RR 746C that provides a 1 January 1996 entry date for the United States. We believe that a change in the RR 746B date is a matter for negotiation at the conference when the 2 GHz allocations of our proposals are considered.

C. MSS Feeder Links

46. Spectrum Requirements. The United States has licensed three Big LEO MSS systems

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[75] See, e.g., CMC comments at 8-10.

[76] See Notice of Proposed Rulemaking, 10 FCC Rcd 3230 (1995).

[77] We are also proposing to downgrade to secondary the status of MSS in the 1970-1990 MHz and 2165-2170 MHz bands in Region 2, and to drop the MSS allocations for Regions 1 and 3 in the 1980-1990 MHz band. We are retaining the secondary Region 2 allocations for possible hybrid PCS-MSS operations.

[78] For instance, in INMARSAT has expressed an interest in aligning the dates. Comsat Mobile Systems would like to advance the RR 746B date to make 2 GHz spectrum outside the U.S. available earlier (Comsat Mobile Systems comments at 6-8). Motorola believes the RR 746B date should remain at 2005 to protect terrestrial fixed services.

[79] Second Notice, 10 FCC Rcd at 4204-05.

and may license two more.[80] In addition to present and future U.S.-licensed MSS systems that require feeder links, on the horizon are non-U.S. systems that will also require access to feeder link spectrum. Spectrum is currently available for the satellite to consumer transmission paths, but is not readily available for feeder links that connect the satellite system to other communications platforms.[81] Administrations who participated in the ITU-R preparation process recognized this and estimated that 200-500 MHz of spectrum would be required in each of three frequency ranges. This realization carried through to the *CPM Report* where participants confirmed that 200-400 MHz would be required in the 4-8 GHz and 8-16 GHz range, and 200-500 MHz would be required in the 16-30 GHz range.[82]

47. *Spectrum Allocations*. Obtaining spectrum for NGSO MSS feeder links is critical for initiating Big LEO services. Identifying candidate bands for feeder links has been one of the most contentious areas in the Commission's preparations for WRC-95. In the *Second Notice* we presented a range of candidate bands for feeder links. These bands are all distillations of a table of candidate feeder link frequency bands that had been recommended at ITU-R technical meetings and that finally appeared as candidate bands recommended for consideration by the CPM.[83]

48. None of our *Second Notice* candidate bands escaped comment. MSS parties make specific comments on bands and the band pairings we proposed. Essentially, those parties suggest specific modifications that would make our preliminary proposals more suitable for their specific systems.[84] GSO FSS interests also are concerned that introducing feeder links in certain FSS bands

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[80] *See Loral/Qualcomm Partnership, L.P.*, 10 FCC Rcd 2333 (Int'l. Bur. 1995); *Motorola Satellite Communications, Inc.*, 10 FCC Rcd 2268 (Int'l. Bur. 1995); *TRW Inc.*, 10 FCC Rcd 2263 (Int'l. Bur. 1995). The Commission also found that Constellation and MCHI needed additional time to establish they were financially qualified, and deferred further consideration of their applications until January 31, 1996. *Constellation Communications, Inc.*, 10 FCC Rcd 2258 (Int'l. Bur. 1995); *Mobile Communications Holdings, Inc.*, 10 FCC Rcd 2274 (Int'l. Bur. 1995). AMSC elected to defer its financial showing. Each of the five orders is the subject of a petition for reconsideration or application for review.

[81] A service link is the transmission path between a space station of an MSS network and a user mobile earth station. A feeder link is the transmission path between a space station and a master control earth station, or gateway earth station. The gateway earth station processes the service link information transmitted through the feeder link, it interconnects the service link to other radiocommunication networks (space and/or terrestrial) or to other user mobile earth stations of the network by routing the service link information back to a space station through a feeder link. WARC-92 made several MSS frequency allocations for service links. However, that conference did not make allocations for feeder links which will operate in FSS frequency bands.

[82] In the *Second Notice* we stated that they estimates would likely just satisfy requirements for 1.6/ 2.4 GHz NGSO MSS systems. Additional systems would increase spectrum requirements. 10 FCC Rcd at 4192, n.77.

[83] *CPM Report* at 66-67.

[84] *See, e.g.,* LQP comments at 16-18; CMC comments at 12.

could limit future expansion of GSO FSS use.[85] AMSC, opposes use of bands it intends to use for its system's feeder links.[86] Teledesic argues that any U.S. proposal must include its spectrum requirements for its NGSO FSS/MSS system.[87]

49. Table 2, below, lists the bands we recommend as U.S. proposals to WRC-95. Discussion on significant issues associated with particular bands follow the Table. Detailed proposals on these bands appear in Appendix 1, Section C.

Table 2.

Bands Proposed for Worldwide NGSO MSS Feeder Link Allocations

Frequency Band*	Bandwidth (MHz)	Transmission Direction(s)	Potential Band Pairings
5090-5250 MHz	160	Earth-to-space	6650-7075 MHz
6650-7075 MHz	425	space-to-Earth	5090-5250 MHz 15.45-15.65 GHz
10.7-10.95 GHz	250	Earth-to-space	12.75-13.25 GHz
11.2-11.45 GHz	250	Earth-to-space	12.75-13.25 GHz
12.75-13.25 GHz	500	space-to-Earth	10.7-10.95 GHz 11.2-11.45 GHz
15.45-15.65 GHz	200 200**	space-to-Earth Earth-to-space	19.4-19.7 GHz 6650-7075 MHz
19.4-19.7 GHz 19.3-19.7 GHz	300** 400	Earth-to-space space-to-Earth	15.45-15.65 GHz 29.1-29.5 GHz
29.1-29.5 GHz	400	Earth-to-space	19.3-19.7 GHz

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[85] See, e.g., Hughes comments at 5-6 and 15; GE comments at 3-4.

[86] AMSC comments at 12. AMSC uses the U.S. allotments in the FSS allotment Plan at Ku-band for its first geostationary satellite.

[87] Teledesic comments at 3-4. Teledesic proposes both FSS and MSS operations in the 28 GHz range. It also has a feeder link requirement in this range (for which the bands it intends to use are allocated). However, Teledesic's system will use NGSO satellites. Previous considerations for FSS around 28 GHz have centered on GSO FSS systems. The FCC does, however, have an ongoing proceeding that will determine domestic use of 28 GHz spectrum between GSO FSS, the local multi-point distribution service and NGSO FSS networks. See Second Notice of Proposed Rule Making, 9 FCC Rcd 1394 (1994). Accommodation of NGSO FSS networks worldwide discussed later.

* The proposed frequency bands include, in some cases, the entire candidate frequency band identified by the CPM-95, and in other cases, a subsection of the candidate frequency band.

** Reverse Band Working would be used to accommodate two non-geostationary mobile-satellite systems in the same band or some portion of the band.

50. Several of our proposed bands warrant additional discussion. Specifically, there are domestic concerns with respect to existing aeronautical use of the 5 GHz band, fixed service use of the 6, 11 and 18 GHz frequency ranges, cable antenna relay service (CARS) use of 13 GHz, and future use among NGSO MSS feeder links, new NGSO FSS/MSS systems, geostationary FSS systems and, domestically, the local multipoint distribution service (LMDS) at 28 GHz. Existing users of these bands proposed for sharing with NGSO feeder links are concerned as to potential impact on their operations.

51. In the Second Notice, we pointed out that the Microwave Landing System currently has precedence in the 5000-5250 MHz band. We also noted that ITU-R studies indicate that sharing between services in the band may be possible with appropriate interference mitigation techniques and/or geographical separation.[88] The CPM notes that up to 130 MHz of contiguous spectrum could be made available without overlapping spectrum now used by MLS.[89] The FAA and the International Civil Aviation Organization have raised concerns about NGSO MSS feeder links possibly interfering with aeronautical uses. We recognize those concerns. However, they are not insurmountable and should not preclude feeder link use of 5 GHz spectrum. Our proposal to place feeder links in this spectrum offers a method to accommodate both services.

52. Fixed service parties are concerned about the effect new feeder link operations would have on their current operations and on the ability to accommodate fixed service growth in bands in the 6 GHz, 11 GHz and 18 GHz ranges.[90] For example, spectrum in the 6 GHz and 11 GHz ranges has been identified for relocation of 2 GHz point-to-point microwave operations that are clearing

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[88] Second Notice, 10 FCC Rcd at 4179, n.5.

[89] See CPM Report at 63-64.

[90] See, e.g., AT&T comments at 2-3; Alcatel reply comments at 2; API reply comments at 5-6. Additionally, the preceding parties, along with APCO, the Association of American Railroads, Harris Corporation - Farinon Division, the Telecommunications Industry Association (TIA) and the Utilities Communication Council, filed a "Statement of Non-Concurrence" (Statement) in response to the IAC's endorsement of certain candidate bands. See Statement of Non-Concurrence, May 16, 1995. In the Statement, FS interests express their concern that NGSO MSS feeder link use would have on current and future FS operations. They also indicate a willingness to work with NGSO MSS interests in this matter and to provide potential solutions for FS-NGSO MSS feeder link sharing. See Late Further Comments on Second Notice of Inquiry (Late Further Comments), May 15, 1995.

spectrum to make room for PCS.[91] Further, TIA notes that the 6 MHz band is already becoming saturated and that requirements for fixed service bands above 10 GHz are escalating as new technologies that require fixed service operation support come into being. TIA asks that the Commission not overlook other users in its 'drive' to accommodate MSS.[92]

53. We are taking into account current and future operations of existing use of bands that we propose to designate for NGSO MSS feeder link use. Specifically, should the 6 GHz and 11 GHz bands previously identified for the reaccommodation of displaced 2 GHz microwave licensees be designated internationally for NGSO MSS feeder link use, we intend to ensure that the current and expected relocation negotiations between 2 GHz PCS licensees and incumbent 2 GHz microwave licensees are not disrupted. To this end, we plan to give priority in the 6 GHz and 11 GHz bands to relocated 2 GHz microwave licensees during a reasonable period of time. This will allow for conclusion of relocation negotiations for 2 GHz microwave licensees and commencement of their new operations. This time period and other issues would be determined in future domestic rule making proceedings.

54. In addition, we note that the ITU-R study groups and the CPM provide extensive study and discussion of technical factors and limits that would facilitate NGSO MSS feeder links sharing with the fixed services.[93] This work can form a basis for any additional studies needed to address specific fixed service concerns in specific frequency bands. However, this should not be a hinderance to making spectrum available internationally for feeder links at WRC-95.

55. Similar concerns arise in relation to future NGSO MSS feeder link (space-to-Earth) operation in the 12.75-13.25 GHz band that is used extensively for cable antenna relay service (CARS). If that band is designated for NGSO MSS feeder link use in the United States, we would need to address domestically issues such as specific coordination procedures and protection criteria for shared use of the band. These domestic measures would be developed as part of a subsequent rule making proceeding that would be necessary before implementing any international allocation decision in the U.S. In addition, we note that all proposed allocations are subject to the fundamental principle that all existing co-primary spectrum users are protected from harmful interference that may be caused by later-in-time co-primary users.[94] For example, an existing CARS operation would be protected from harmful interference from a later-entering MSS NGSO feeder link operation.[95]

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[91] See Second Report and Order, ET Docket No. 92-9, 8 FCC Rcd 6495 (1993).

[92] TIA reply comments at 3-4.

[93] CPM Report at 22-28.

[94] See ITU Constitution, Final Acts of the Additional Plenipotentiary Conference, Art. 45 (Geneva, 1992).

[95] These protections would also apply with equal force to existing co-primary broadcast auxiliary services and CARS users operating in the 6 GHz, 13 GHz, and 19 GHz band ranges also proposed for designation for NGSO MSS feeder link use.

IV. REGULATORY/PROCEDURAL CONSTRAINTS ON NGSO SATELLITE NETWORKS

A. MSS Service Links

56. WRC-95 will review regulatory/procedural constraints on the use of frequency bands allocated to MSS between 1 and 3 GHz with a view to facilitating their use for MSS. These constraints are primarily encompassed in Resolution 46, a set of temporary procedures developed at WARC-92 to accompany the introduction of the new NGSO MSS allocations in specific frequency bands.[96] Resolution 46 provides an interim procedure for coordination and notification of frequency assignments of non-GSO networks in certain space services and other services to which the bands are allocated. The global community, including U.S. industry, has been largely satisfied with the Resolution's provisions. The commenters, the IAC, and the CPM express a uniform view that Resolution 46 should be retained with minor improvements based on the three years of experience gained in applying the procedure and on the development of technical criteria since WARC-92.[97]

57. The VGE Report recommends that the Resolution 46 procedures be combined with the coordination procedures of the existing RR Article 11 and related provisions into a single standardized coordination procedure to be provided in Article S9 (and associated Appendix S5) of the Simplified Radio Regulations.[98] The CPM concluded, however, that irrespective of WRC-95's decisions regarding Article S9 and related provisions of the simplified RRs, WRC-95 should also adopt a modified Resolution 46 containing certain recommended certain immediate improvements to the coordination of NGSO MSS networks. Modified Resolution 46 that would come into effect upon WRC-95's conclusion and would remain in effect until the entry into force of the simplified RRs.[99] The commenters support this approach.[100] We therefore propose a Modified Resolution 46 and parallel adjustments to the VGE's coordination procedures in Appendix 1, Section D, USA/ /1 - USA/ /61; Section G, USA/ /5 - USA/ /53, USA/ /97 - USA/ /111.

58. These recommended proposals would implement the improvements to the current Resolution 46 procedure recommended by the commenters and the IAC, and suggested by the CPM. These improvements, which were previously described in the Second Notice,[101] are intended to eliminate unnecessary coordinations, and include: replacing coordination distances with system specific coordination methods given in ITU-R Recommendations for coordination between mobile

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[96] Resolution No. 46 (WARC-92).

[97] See generally CPM Report at 88-108; see also IAC Final Report, at 19-22, 153-55; Iridium comments at 19-21; LEO One at 13; Motorola comments at 10-11; ORBCOMM comments at 8, STARSYS comments at 7; LQP reply comments at 18.

[98] See VGE Report, Part A, 28-29.

[99] CPM Report at 85,88.

[100] See Iridium comments at 20; LQP comments at 18; Motorola comments at 13-14; Iridium reply comments at 19-21; Motorola reply comments at 10-11; ORBCOMM reply comments at 10-11.

[101] Second Notice, 10 FCC Rcd at 4182-87.

earth stations of non-GSO MSS (space-to-Earth) systems and FS stations;[102] restoring exemptions from coordination from Article 11;[103] expanding the technical information requirements provided in Appendix 3 to enable precise calculations of power flux density values;[104] and adding a provision to Section 2.8 to clarify risks of not responding within the six-month period to requests for coordination.[105] Additional proposals address assistance to be rendered by the Bureau and editorial changes updating references to the ITU-R's structure.[106] As we discuss below, we further propose to modify Resolution 46 to make it applicable to NGSO MSS feeder link stations. Finally, our proposals do not include the addition of an affected region approach for coordination of MSS networks with co-frequency terrestrial and mobile earth stations.[107] Such methods are properly the subject of agreement between administrations where coordination is necessary and, therefore, need not be included in treaty text.[108]

B. MSS Feeder Links

59. In Second Notice, we described regulatory challenges facing NGSO MSS feeder links operating in the bands allocated to FSS.[109] Specifically, we noted the existence of a certain operational constraint, RR 2613, that seeks to prohibit NGSO emissions from causing unacceptable

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[102] Appendix 1, Section D, USA/ /26. See CPM Report at 93; IAC Final Report at 28, 154-55.

[103] Appendix 1, Section D, USA/ /27; See CPM Report at 105-06, 166.

[104] Appendix 1, Section D, USA/ /14. See CPM Report at 90-91; IAC Final Report at 155; E-SAT comments at 2; LEO One comments at 13; LQP comments at 20-21; ORBCOMM comments at 9; Iridium reply comments at 20; Motorola reply comments at 16.

[105] CPM Report at 90; IAC Interim Report at 69; Iridium comments at 21; Motorola comments at 10-11; Iridium reply comments at 21; Motorola reply comments at 16-17; see also ORBCOMM comments at 9.

[106] See, e.g., Appendix 1, Section D, USA/ / 13, USA/ /15.

[107] See CPM Report at 89-90; IAC Final Report at 28, 154; Iridium comments at 19-21; Iridium reply comments at 18-20; LQP comments at 19; Motorola reply comments at 15-16; TRW reply comments at 12-14.

[108] In its Final Report, the IAC supports the preservation of the status of certain systems in the 1525-1559/1626.5-1660.5 MHz bands, namely AMSC and INMARSAT, which were exempted from Resolution 46 at WARC-92 by operation of a joint U.S.-U.K. reservation, Final Protocol No. 679, to the WARC-92 Final Acts. IAC Final Report at 155-56; Second Notice, 10 FCC Rcd at 4185-86, n.56. We will prepare a position for use at WRC-95 to preserve status of systems in these bands that were already in coordination prior to adoption of Resolution 46 from that procedures provision in accordance the WARC-92 reservation.

[109] Second Notice, 10 FCC Rcd at 4187-91.

interference to current or future GSO FSS systems in bands to which this provision is applied.[110] The Radiocommunication Bureau does not currently apply RR 2613 but the constraint may be implemented by individual administrations. The existence of RR 2613 causes a tenuous regulatory status for NGSO MSS feeder links. Further exacerbating the confusion is that the Radio Regulations, including Resolution 46, do not specify coordination procedures for NGSO networks. The CPM observed that NGSO MSS network feeder links and GSO FSS networks "must have a regulatory base which permits their orderly operation without any regulatory uncertainties to their full operational life."[111]

60. The IAC studied RR 2613 and the uncertain regulatory environment in effect for NGSO systems. In its Final Report, the IAC submits proposals pertaining to the applicability of RR 2613 to specific frequency bands but was unable to come to consensus on a specific modification to the provision.[112] These proposals as they relate to specific frequency bands are generally reflected in our attached recommended proposals to amend Article 8 of the existing Radio Regulations, containing the Table of Frequency Allocations. See Appendix 1, Section C, USA/ /1 - USA/ / 31.[113]

61. IWG-1 identified two basic options to modify the applicability of RR 2613: 1) to limit its applicability to the currently heavily-used FSS bands; or 2) to waive its provisions in bands

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[110] RR 2613 provides:

> **Non-geostationary space stations shall cease or reduce to a negligible level their emissions, and their associated earth stations shall not transmit to them, whenever there is insufficient angular separation between non-geostationary satellites and geostationary satellites resulting in unacceptable interference[1] to geostationary-satellite space systems in the fixed-satellite service operating in accordance with these regulations.**
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> **The level of accepted interference shall be fixed by agreement between the administrations concerned, using the relevant CCIR Recommendations as a guide.**

[111] **CPM Report at 95.**

[112] The IAC was unable to agree on the regulatory treatment of 17.7-20.2 GHz and 27.5-30.0 GHz. The GSO FSS proponents advocate continuing application of RR 2613 to these bands in order to preserve opportunities for future expansion of GSO FSS systems. IAC Final Report at 38-39. Proponents of NGSO MSS networks and NGSO FSS systems that would use the bands for FSS service links and feeder links argue that RR 2613 should not be applied in the above frequency bands so as not to unreasonably constrain growth of NGSO services. Id. at 37-38.

[113] Our proposals refer to RR 2613 in VGE parlance as S22.2.

(or specific sub-bands) designated for NGSO MSS feeder link use.[114] We have chosen the second option as the more direct and least difficult of the two approaches.[115] Our proposals to modify Article 8 seek to designate use of selected frequency bands for NGSO MSS feeder links on either a co-directional or bi-directional basis. They include footnotes specifying that the provisions of RR 2613 do not apply in the associated frequency bands but only for NGSO MSS feeder links operating in a specific direction of transmission.[116] The candidate bands we propose for NGSO MSS feeder links, in specific directions of transmission, are not currently heavily used by the FSS. Consequently, the FSS frequency bands that are currently heavily used by GSO FSS systems will continue to enjoy such protections that RR 2613 may provide them from NGSO systems in the same bands and/or in the direction of transmission not specifically allocated for NGSO MSS feeder link use by the footnotes to the Table.[117] We find that this proposed regulatory approach adequately addresses the status of NGSO MSS feeder links and GSO FSS networks without resorting to modifying the language of RR 2613.[118] Accordingly, we propose no change to RR 2613 itself at this time.[119]

62. The CPM expressed the view that coordination pursuant to Resolution 46 should be extended to feeder links in bands identified by WRC-95 for feeder links to NGSO MSS space stations.[120] It also offered suggestions that would reduce the amount of such coordination vis-a-vis the fixed service where conditions that it identified are met. Finally, CPM-95 offered examples of regulatory text. We generally agree with the CPM's recommendations. We conclude that NGSO MSS feeder links in bands designated by this conference should be implemented in accordance with the coordination and notification procedures set forth in Resolution 46 as modified at WRC-95. We offer a modified Resolution 46 (MOD Res 46) to accomplish these aims and to effect certain other improvements.

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[114] Comments on this matter were widely divergent and reflected the service provided by the commenter. NGSO MSS proponents tend to favor waiving RR 2613 in certain bands to be designated for use for NGSO MSS feeder links -- including in bands above 17.7 GHz. See, e.g., Iridium comments at 22-23; LQP comments at 28; Constellation reply comments at 5, 6. GSO FSS proponents are of the view that RR 2613 should not be relaxed in these bands. See, e.g., GE comments at 2-3,5, Hughes comments at 5-6.

[115] IAC Final Report at 33-39.

[116] Where RR 2613 does not apply, the coordination procedures of MOD Resolution 46 will apply.

[117] IAC Final Report at 34.

[118] Our experience at the WPCPM and CPM demonstrates that a more detailed consideration of RR 2613 at WRC-95 would prove to be a controversial and time-consuming effort which, because the provision is not applied by the Bureau, offers little or no cognizable benefit to U.S. interests.

[119] Accord TRW reply comments at 7-8. We note that the CPM Report did not address any specific revisions to RR 2613. We conclude that the provision requires further discussion in the U.S. and in the WPCPM before significant changes can be proposed. It is our view that RR 2613 should be reexamined in light of its current application and the need to have regulatory provisions that are clear and flexible to accommodate future implementation of various satellite configurations.

[120] CPM Report at 94-100.

C. FSS Networks

63. We described in the Second Notice a request to remove an existing regulatory obstacle in the Radio Regulations to ease implementing NGSO FSS satellite networks in FSS spectrum in the 28 GHz range.[121] Specifically, Teledesic recommended modifying RR 2613[122] in certain parts of that spectrum range so that NGSO networks that provide FSS would have regulatory parity with GSO networks that provide FSS. We noted Teledesic's request, but made no proposal.

64. MSS proponents seeking removal at WRC-95 of RR 2613 in certain bands to accommodate their feeder link needs argue that their requirements should be satisfied before taking up newer requirements such as Teledesic's. They contend that introducing a NGSO FSS network requirement at WRC-95 may jeopardize U.S. proposals for NGSO MSS feeder links.[123] Additionally, GSO FSS interests that may use spectrum Teledesic requests, and are opposed to making regulatory adjustments that may give NGSO networks an "advantage" in certain bands.[124] Other GSO interests claim that the two types of networks can share spectrum, and, therefore, regulatory adjustments are unnecessary.[125]

65. NGSO FSS networks can provide myriad benefits worldwide. In countries with developed communication infrastructures such as our own, they may augment or provide alternatives to existing services. In countries still developing their communication infrastructures, they can be an elemental component of a modern infrastructure. For example, an NGSO FSS system can serve as a public switched network in the sky. An operator of such a network would incur minimal incremental costs in providing service to administrations with underdeveloped infrastructure. This is because to serve more developed, and initially more lucrative markets, the NGSO network operator would have already borne high start-up costs to launch its network. Since this network would have satellites that pass over all points of the earth, serving areas outside the initial markets would be a matter of

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[121] Second Notice, 10 FCC Rcd at 4191, n.74.

[122] RR 2613 applies to any NGSO network, whether for a NGSO FSS network, or for a NGSO MSS feeder link network operating in FSS bands [below 30 GHz]. Briefly, under the current regime, NGSO networks must protect existing and future GSO networks in those bands. Effectively, NGSO networks are placed under certain conditions in a de facto secondary status relative to any GSO network, even though NGSO FSS networks for both types of use are not given secondary status in the international allocation table.

[123] For example, Iridium states that NGSO FSS regulatory issues should not be addressed at WRC-95, as they are not explicit in the '95 agenda and could undermine efforts to remove RR 2613 in FSS bands we propose for NGSO MSS feeder link use. See Iridium comments at 24.

[124] For example, GE states that RR 2613 should not be relaxed in FSS bands because it is unlikely that GSO FSS networks and NGSO networks could share spectrum on a co-frequency basis. In effect, stations first in time would be first in rights. See GE comments at 2-3.

[125] Hughes comments at 14-15.

"switching on" the satellites as they pass these areas.[126]

66. To realize these benefits in the immediate future, segments of the existing 28 GHz FSS allocations should be made more useable for NGSO FSS networks at WRC-95. The issues of providing for NGSO FSS networks or for NGSO MSS feeder links are distinct, but hindered by a common regulatory obstacle -- RR 2613. The opportunity exists at WRC-95 to satisfy pressing and immediate requirements for two evolving, new technologies -- NGSO FSS networks and NGSO feeder links to support Big LEO networks. WRC-95 should address all issues related to RR 2613 and its constraint on NGSO operations.

67. We propose to remove this obstacle and allow NGSO networks to move forward.[127] In bands with identified NGSO network requirements there should be regulatory parity, i.e. co-primary services (footnote -- there are subtleties to RR 2613. For example the Radiocommunication Bureau does not currently apply that regulation. However, the regulatory uncertainty of such a provision for NGSO proponents causes pause in deciding whether to go forward with worldwide systems. To the point, a later arriving GSO system could cause an existing NGSO network to take extreme measures or even cease operations if harmful interference is caused to that GSO system.

68. Our proposal is to make available for NGSO FSS networks the following bands: 500 MHz (satellite-to-earth direction) at 18.8-19.3 GHz and 500 MHz (earth-to-satellite direction) at 28.6-29.1 GHz for NGSO FSS networks. Note that these bands are already designated internationally for the use we seek.[128] Our proposed action is only to remove regulatory obstacles to implementing new NGSO FSS services. See Appendix 1, Section E.

V. FINAL REPORT OF THE VOLUNTARY GROUP OF EXPERTS

69. The "Voluntary Group of Experts (VGE) to Study Allocation and Improved Use of

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[126] In this regard, Big LEO networks are similar. However, the two types of NGSO networks are intended to serve somewhat different market needs.

[127] The CPM noted that additional sharing studies for NGSO FSS networks should be undertaken, particularly with regard to potential interference between NGSO MSS feeder links and NGSO FSS operations. See CPM Report at 52. However, this should not hinder consideration of this subject at WRC-95. Such analysis is ongoing and is similar to interference modeling for the MSS feeder link to MSS feeder link. If RR 2613 is suspended in spectrum we have identified for NGSO FSS networks, we expect that specific technical criteria for NGSO FSS use of that spectrum will be in place as networks are implemented. Further, such networks, under our proposal, will be subject to coordination under Res 46 as modified.

[128] With respect to our NGSO FSS and NGSO MSS feeder link proposals in the 28 GHz range, we note that the Commission is currently considering a domestic "band plan" that would resolve sharing issues between the local multipoint distribution service (LMDS), NGSO FSS and NGSO MSS feeder link networks. Our proposals here should prove sufficiently flexible to accommodate whatever domestic band plan is ultimately adopted. However, if necessary we conform our 28 GHz WRC proposals to conform to the adopted domestic plan.

the Radiofrequency Spectrum and Simplification of the Radio Regulations" was conceived by the ITU in 1989 as part of an effort to improve use of the radiofrequency spectrum and to simplify the international Radio Regulations (RR).[129] The VGE divided its work into three areas: Task 1 on the simplification of the allocation of frequency bands; Task 2 on the simplification of regulatory procedures; and Task 3 on the simplification of operational and administrative matters. The VGE issued its Report containing proposed simplified Radio Regulations in 1994.[130] WRC-95 will review the final report of the VGE and related proposals from administrations to revise, as appropriate, the international Radio Regulations and to provide a timetable for the implementation of recommended actions.

A. Task 1 - Simplification of Allocation of Frequency Bands

70. VGE Task 1 includes a broad review of the structure and framework for the international Table of Frequency Allocations (Table). The VGE decided that the present form of the Table continues to be appropriate. Most proposals in Task 1 are in terms of recommendations on general principles to be followed when making spectrum allocations. There are some specific proposals for simplification and consolidation of footnotes to the Table. We are generally supportive of the Task 1 results.

71. There are few areas where the proposals of VGE Task 1 could benefit from revision. These proposals address: a) simplifying the format for footnote allocations that reference the former Article 14; b) correcting a table listing frequency bands used for Radio Astronomy; c) deleting two outdated footnotes in the Table (RR 700 and RR 704A); and d) presenting a new recommendation embracing some of the long term guidelines on allocation practices presented by the VGE. These proposals are presented in the attachment. See Appendix 1, Section F, USA/ /1 - USA/ /64.

B. Task 2 - Simplification of Regulatory Procedures

72. In Task 2 the VGE undertook a complete revision of the Radio Regulation's regulatory procedures now embodied in Articles 11-17, Appendices 1-5 and 25-30B, and in several resolutions from previous conferences -- including Resolution 46. These provisions encompass the rights and obligations relating to frequency assignments; status of entries in the Master International Frequency Register; advance publication of space systems; coordination procedures; and world and regional frequency allotment and assignment plans. The VGE recommends a single generic regulatory procedure for coordination and notification of radio frequency assignments based on common elements of procedures now in use. Some unique regulatory provisions that apply to certain bands and services are retained. The VGE sought to further simplify the procedures by excising

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[129] See Final Acts of the Plenipotentiary Conference, Resolution No. 8 (Nice, 1989). The ITU Administrative Council implemented the Resolution and formed the VGE in 1990.

[130] Report by the Voluntary Group of Experts to Study Allocation and Improved Use of the Radio Frequency Spectrum and Simplification of the Radio Regulations (VGE Report) (1994). The VGE Report consists of 3 parts: Part A - General Guidelines and Recommendations; Part B - Recommended Changes to the Radio Regulations; and Part C - the Simplified Radio Regulations. Portions of the report are associated with the docket of this proceeding.

some of the details of the procedures from the Radio Regulations and placing them in ancillary documents, including the Rules of Procedure to be developed by the Radiocommunication Bureau.[131]

73. We support generally Task 2 efforts to simplify the Radio Regulations' regulatory procedures. However, the decision to remove important regulatory text from the Radio Regulations to ancillary texts, leaving development of important details for later consideration, accomplishes the intended simplification. With certain adjustments to the Task 2 portion of the VGE Report, the simplified provisions can be made simpler and thereby better address the VGE's goals. Other adjustments are intended to reduce the number of coordinations.[132] Attached are recommended U.S. Proposals to make these adjustments. See Appendix 1, Section G, USA/ /1 - USA/ /111.

74. We also propose a Resolution to defer consideration of the applicability of Article S10 (Procedure for Modification of a Frequency Allotment or Assignment Plan) to current Appendices 30 and 30A (Plans and Procedures for Broadcasting-Satellite Service and Feeder Links) until a future WRC.[133] See Appendix 1, Section G, Resolution No. USA-S10.

C. Task 3 - *Simplification of Operational and Administrative Matters*

75. VGE Task 3 includes a review of the textual provisions on operational and administrative matters, including related Appendices, to: improve the presentation of these provisions; eliminate unnecessary provisions; and remove text that could be maintained by the Study Groups of the ITU-R. The VGE adopted several principles in this regard, the most significant of which was that current practices and the substance of the provisions remain unchanged by the simplification. A second important principle adopted by the VGE was to eliminate outdated, redundant, or otherwise unnecessary provisions as well as those that are required by other provisions.

76. Task 3 also sought to reduce the physical bulk of the Radio Regulations by transferring certain text and appendices to other ITU instruments. This was accomplished by using the principle of "incorporation by reference" whereby some technical text with treaty status (*i.e.*, the mandatory status enjoyed by provisions of the Radio Regulations) would be transferred to ITU-R Recommendations, but effectively be made a part of the Radio Regulations, and thus imbued with treaty status, by use of a cross referencing provision in the body of the Radio Regulations.[134] This cross reference would be to make explicit note of the Recommendation to be incorporated, including subsequent revision numbers, to ensure that only the version approved by a WRC could be incorporated. We support the concept of incorporation by reference and employ this concept in our

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[131] See Notice, 9 FCC Rcd at 2432-33.

[132] In accordance with commenters' suggestions, we also propose to modify S9.30 to permit requests for coordination to be submitted directly to the Bureau. See Iridium comments at 21-22; Iridium reply comments at 21; Motorola reply comments at 17. See also CPM Report at 85.

[133] Accord IAC Final Report at 22, 57-63.

[134] VGE Report, Part A at 33-34.

attached recommended proposals.[135] We are sensitive, however, to the concerns of other Administrations, expressed in the CPM Report, that the incorporated provisions should remain easily accessible to all Members and we support the idea of publishing linked provisions in a single companion volume to the Radio Regulations.[136]

77. In general, we support the work of Task 3. Some modifications, mostly of an editorial nature, have been prepared in collaboration with the government agencies participating in the RCS. These recommended proposals are included in Appendix 1, Section H, USA/ /1 - USA/ /13 .

VI. OTHER WRC-95 ISSUES

A. Space Services

78. Earth Stations in the 2025-2110 MHz Band. WARC-92 upgraded to primary the status of the space research, space operation, and Earth exploration-satellite services in the 2025-2110 MHz band. This band is also allocated for primary fixed and mobile use. In the United States, the band is allocated to the mobile service on a primary basis and is generally used for electronic news gathering purposes. WARC-92 did not specify power limits appropriate for earth stations sharing with other services in the band. Although RR No. 2541 provides power limits for earth stations operating in frequency bands between 1 and 15 GHz, explicit limits for earth stations in the space science services are not given. In the Second Notice, we asked whether existing RR No. 2541 limits are appropriate for 2025-2110 MHz earth stations.[137]

79. There were no comments responding to our Second Notice request. The IAC proposed that the U.S. position be to support proposals of other administrations to apply the RR No. 2541 power limits to space science services earth stations in the 2025-2110 MHz band.[138] The CPM concluded that the power limits of RR No. 2541 could be met by space science service earth stations operating in the 2025-2110 MHz band if necessary to protect terrestrial services.[139]

80. In the absence of comments or technical studies to the contrary, we propose that the RR No. 2541 power limits apply to the space science services in the 2025-2110 MHz band. See Appendix 1, Section I, USA/ /1.

81. Fixed Satellite Service Use of 13.75-14.0 GHz Band. The 13.75-14.0 GHz band is shared with the radiolocation and radionavigation services and is available on a secondary basis for

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[135] Accord Iridium reply comments at 21; Motorola reply comments at 17.

[136] CPM Report at 87.

[137] Second Notice, 10 FCC Rcd at 4206-07.

[138] See IAC Report at 273-74.

[139] See CPM Report at 73.

the space research, Earth exploration-satellite, and standard frequency and time- signal satellite services. WARC-92 adopted footnote RR 855A to the international Radio Regulations that specifies technical criteria for sharing among services in this band.[140] Resolution 112 (WARC-92) resolves that the criteria specified in RR 855A be studied and that studies be conducted on the technical compatibility between FSS and secondary allocations in the 13.75-14.0 GHz band. Resolution 112 also recognizes that RR No. 855B stipulates that until 1 January 2000, stations of the fixed-satellite service shall not cause interference to NGSO space stations in the space research service and the Earth exploration-satellite service.

82. We noted that there appeared to be general agreement on the values developed in ITU-R Task Groups. We proposed to modify RR 855A to include those values and to modify RR 855B to include constraints on the fixed-satellite service to allow the space research service and the Earth exploration-satellite service to operate beyond the year 2000.[141] Having completed the studies specified in Resolution 112, and upon their acceptance, Resolution 112 could then be suppressed.

83. Commenters support our proposals.[142] The IAC recommended to us our original proposal and maintains that recommendation in its Final Report.[143] The CPM also concludes that all necessary studies have been completed to satisfaction and Resolution 112 can be suppressed and the appropriate modifications made to RR Nos. 855A and 855B.[144] We maintain our Second Notice proposal. It appears in final form in Appendix 1, Section I, USA/ /1 - USA/ /3.

84. Space Services Allocations. Agenda item 3 for WRC-95 provides for consideration of Resolution 712 (WARC-92), with a view towards taking action at WRC-97. The following issues relating to space science services are considered under Resolution 712: (1) providing worldwide primary allocations for the Earth-exploration and space research services in appropriate bands within the 8-20 GHz range; (2) satisfying inter-satellite service requirements for up to 50 MHz of spectrum near 23 GHz; (3) providing up to 1 GHz of spectrum for space-based active Earth sensors around 35 GHz; and 4) including certain ITU-R-approved space science service coordination parameters in Appendix 28 of the Radio Regulations. The Commission is not making specific proposals on these issues at this time.

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[140] These criteria include minimum and maximum e.i.r.p. values of 68 dBW and 85 dBW, respectively, and a minimum antenna diameter of 4.5 meters for earth stations in the fixed-satellite service. Footnote 855A also provides a maximum e.i.r.p. value for stations in the radiolocation and radionavigation services.

[141] Second Notice, 10 FCC Rcd at 4207-08.

[142] See, e.g., CWS comments at 2-4; Hughes at 16.

[143] IAC Final Report at 258.

[144] CPM Report at 75.

B. Appendices 30 and 30A

85. The WRC-95 agenda contains two items relating to Appendices 30 and 30A, which provide plans for broadcast-satellite services (BSS) and associated feeder links. The consideration of these items by WRC-95 could impact broadcasting-satellite systems in the United States. Comments were received from Hughes and USSB on this subject and the IAC and the CPM considered these matters in detail.

86. WRC-95 will also consider the VGE Report and its three recommendations that would lead to changes in how the Region 2 Plans, contained in Appendices 30 and 30A, are presented in the Radio Regulations. Besides removing the Plans themselves from the Regulations, these recommendations would replace the procedures for Plan implementation by new "simplified procedures" applicable to all space services and would adopt a new "generic" modification procedure. The commenters and the IAC agree that the consideration of the VGE Report in this area should be deferred to WRC-97, when Appendices 30 and 30A may be otherwise modified. We agree and recommend that the U.S. delegation to WRC-95 support this position.

87. WRC-95 also will consider modifications to the Regions 1 and 3 Plans in Appendices 30 and 30A, with a view to WRC-97 taking action, as appropriate. The IAC and commenters are concerned that current U.S. system designs whose characteristics differ from the Region 2 Plan may be affected. They also expressed concerns that since the Commission, to date, has notified US BSS systems under Resolution 42 instead of formally modifying the Region 2 Plan, that these systems will not receive international protection. Some concern is warranted since the full range of protections provided to BSS systems notified under Appendix 30 are not available to BSS systems notified only under Resolution 42. Early indications are that WRC-95 will adopt planning principles to use for the modification of the Region 1 and 3 Plan. The U.S. position will be that these modifications must protect all in-orbit U.S. BSS and FSS systems and ensure the continuity of deployment of new U.S. BSS systems.

88. WRC-95 agenda Item 3a also requires that consideration be given to aligning Region 1 and 3 orbital locations allotted in Appendix 30 for BSS and Appendix 30B for FSS. Such alignment could allow a country to launch a hybrid BSS/FSS satellite. Any such alignment must also take into account the effects on the Region 2 Plans and existing FSS assignments. The IAC found that, subject to appropriate inter-Regional sharing criteria, the impact on Region 2 would be negligible and would lead to desirable improvements in the usefulness of the Regions 1 and 3 Plans. ITU-R WP 10/11S and the CPM found that if the idea was applied systematically, the approach will complicate planning exercises, but could be taken into account in some cases. Since this item addresses principally Regions 1 and 3, we will not put forward any proposals regarding Appendices 30/30A at this time, but will follow this matter closely, both at ITU-R SG 10-11/S, which next meets in September, before the Conference, and at WRC-95 itself.

89. The Second Notice raised the issue of inter-Regional sharing criteria. We asked whether or not these criteria might be modified for Region 2 on a reciprocal basis with Regions 1 and 3. While this matter elicited some comment, no concrete proposals were submitted. We find that at this time a proposal would be premature.

C. High Frequency Broadcasting

90. WRC-95 Agenda Item 3c addresses the availability of High Frequency Broadcasting (HFBC) bands allocated at WARC-79 and WARC-92.[145] The use of these bands was conditioned on the development of an acceptable worldwide planning system which has proven to be a difficult task due to excessive demand and limited HFBC spectrum. The ITU has established Task Group 10/5 for the purpose of addressing planning procedures.

91. Task Group 10/5 has produced a draft report that examines several planning procedures for broadcasting and other services. These procedures are based on informal coordination and supported by agreed technical evaluations. The CPM reports that based on accomplishments to date, Task Group 10/5 expects to present to WRC-97 a suitable planning procedure for all bands allocated to HF broadcasting. The CPM recommends that given the status of Task Group 10/5's work, WRC-95, when reviewing the VGE Report consider holding in abeyance revision of Article 17 (Article S12) until WRC-97.[146] We therefore do not offer a specific proposal at this time, but would likely support this recommendation in U.S. position papers at WRC-95.

VII. FUTURE CONFERENCE AGENDAS

92. WRC-97 Agenda. Under the ITU's new four-year conference planning cycle, WRC-95 will recommend an agenda for WRC-97, based on the preliminary agenda adopted at WRC-95, and a preliminary agenda for WRC-99.[147] Our Notices requested comment on whether we should propose at WRC-95 any changes to the recommended WRC-97 agenda and whether there were subjects that we should seek to place on a preliminary WRC-99 agenda or future conference agendas.[148] We also charged the IAC, through IWG-6, to provide advice on topics for future conference agendas.[149]

93. The majority of the commenters expressed the view that most of WRC-97 should be reserved for consideration of outstanding MSS issues that will carry over from WRC-95.[150] Several

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[145] Resolution No. 523 WARC-93 resolves that administrations will not bring broadcasting stations into service in certain bands until a planning procedure for their use is in place.

[146] See CPM Report at 82.

[147] A copy of the recommended agenda for WRC-97 is attached to the Notice. 9 FCC Rcd at 2443.

[148] Notice, 9 FCC Rcd at 2437; Second Notice, 10 FCC Rcd at 4215-16.

[149] Second Notice, 10 FCC Rcd at 4216-18.

[150] AMSC comments at 12; CMC comments at 27; CWS at 11-12; Iridium comments at 24-26; Motorola comments at 13; TRW comments at 26-27. Item 1 of the WRC-97 preliminary agenda provides for "tak[ing] appropriate action in respect of those urgent issues that were specifically requested by the 1995 World Radiocommunication Conference." We note that it is probable that VGE issues, like MSS issues, will carry over from WRC-95 to WRC-97, and perhaps beyond.

propose that language be added to Item 3.1 of the preliminary WRC-97 agenda to expressly include consideration of new allocations for MSS service links in addition to MSS feeder links.[151] On the other hand, NOAA urges that consideration of MSS issues not supersede consideration of the space service issues that are provided on the WRC-97 preliminary agenda.[152] Several commenters state that the consideration of allocations for NGSO satellite networks, and associated regulatory aspects, should be added to the WRC-97 agenda.[153] CWS suggests that the numerous issues on the WRC-97 preliminary agenda be prioritized with the top half preserved on the WRC-97 agenda and the second half relegated to the WRC-99 preliminary agenda.[154]

94. The IAC Final Report presents a menu of additional topics for WRC-97. As we described in the Second Notice, these recommendations include: identification of spectrum below 1 GHz on a regional or global basis for terrestrial public safety applications;[155] consideration of spectrum requirements and allocations for the Transport Information and Control Systems (TICS);[156] and an allocation of the 5000-5250 MHz band to the mobile service for use by high speed wireless data systems (HSWDS).[157] We decline to propose that these topics be added to the WRC-97 agenda at this time for the following reasons.

95. With respect to the "identification" of spectrum for public safety applications, proposed to IWG-6 by TIA, we reiterate that there already exists a terrestrial fixed and mobile service

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[151] See also IAC Final Report at 317. Item 3.1 of the WRC-97 Preliminary Agenda provides for the consideration of "unresolved and other pressing issues concerning frequency allocations and regulatory aspects as related to the mobile-satellite services, including allocations for feeder links for mobile-satellite services, as appropriate."

[152] NOAA comments at 7-8. These issues include consideration of Res. 712 (WARC-92), Rec. 621 (WARC-92), Rec. 711 (Orb-88), Res. 712 (WARC-92), and allocation of frequency bands above 50 GHz to the Earth exploration-satellite service. Id. at 7-10.

[153] Iridium comments at 24-26; Teledesic comments at 20-21; LQP reply comments at 11-12; Motorola reply comments at 11-12. Teledesic proposes that an item be added to the WRC-97 agenda to consider regulatory aspects of NGSO-FSS and MSS networks in the 17.7-59.0 GHz range. See IAC Final Report at 287-89.

[154] CWS comments at 13. CWS also asserts that Rec. 715 (Orb-88) and Rec. 719 (WARC-92) should be considered at WRC-97. Id. at 11-12.

[155] In the IAC Final Report, TIA recommends that frequencies below 1 GHz be identified for relatively inexpensive, interoperable terrestrial public safety systems. It contends that a unique opportunity may arise to identify spectrum in the 380-399.9 MHz band worldwide for such use. IAC Final Report at 290-97. See also Second Notice, 10 FCC Rcd at 4218; AAR comments at 9-12; Motorola comments at 19-22; TIA reply comments 8-9.

[156] IAC Final Report, at 298-304. See also ITS America comments at 1-2.

[157] IAC Final Report, at 304-17. The report includes LQP's opposition to this proposal, which opposition is joined by CMC. See also AT&T comments at 4-6; Motorola comments at 22-23; LQP reply comments at 7.

allocation in the desired frequency range to accommodate this proposed specific use.[158] For a WRC to identify a specific use within such an existing international service allocation would run counter to the frequency allocation methods promulgated by the VGE that prefer allocation of broadly defined services.[159] The Commission's allocation philosophy similarly favors broad allocations to permit flexible development of products and services.[160] In any event, it is our experience that such specific uses of an existing international allocation are best left to individual administrations. Our decision not to propose this item for WRC-97 agenda does not in any way serve to preclude a future domestic decision to designate spectrum for public safety use.

96. We find the proposal advocated by the International Transportation Society of America (ITS America) to IWG-6 for spectrum allocations for TICS – the international nomenclature for the Intelligent Transportation Service (ITS) or the Intelligent Vehicle Highway Service (IVHS) – is premature. TICS is at a preliminary stage in which system architecture is still being designed and spectrum is yet to be identified. TICS proponents have just recently succeeded in getting an initial question, Study Question 51/8, added to Study Group 8 of the ITU-R for consideration of TICS requirements and characteristics. Also, we have not yet been provided with sufficient information to support a determination that an allocation is appropriate in light of the current domestic treatment of ITS as a land mobile service.[161] We will monitor the progress of the work on TICS in Study Group 8 and will consider in the future proposing any appropriate TICS items for WRC agendas.

97. Finally, we decline to propose to add to the WRC-97 agenda an allocation in the 5.2 GHz band for HSWDS, a proposal AT&T advocated to IWG-6. As discussed above, we are seeking at WRC-95 allocation of this band for NGSO MSS feeder links. While AT&T states that HSWDS could share spectrum in the band with ARNS and NGSO MSS feeder links (with geographic separation), we conclude that consideration of HSWDS would complicate the issue of sharing 5 GHz spectrum between aeronautical radionavigation and NGSO MSS feeder links.[162] Consideration of HSWDS use of 5 GHz may be addressed after resolution of the feeder link issue if necessary. In any

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[158] Second Notice, 10 FCC Rcd at 4199-200 n.88, 4218 n.155. Furthermore, the Radio Regulations do not contain a definition for a public safety service.

[159] VGE Rec.No. 1/7 provides: "WRCs should, wherever possible, allocate frequency bands to the most broadly defined services to provide the maximum flexibility to administrations in spectrum use, taking into account technical, operational, economic and other relevant factors. VGE Report, Part A at 10.

[160] See, e.g., Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use, First Report and Order and Second Notice of Proposed Rule Making in ET Docket No. 94-32, FCC 95-37, at paras. 48-54, released Feb. 17, 1995; Amendment of the Commission's Rules to Establish New Personal Communications Services, Second Report and Order in GEN Docket 90-314, 8 FCC Rcd 7700, 7710-13 (1993).

[161] IWG-6 states that "ITS America anticipates that some ITS spectrum allocations are likely to be categorized as land mobile services." It also states the FCC is initially accommodating these services in the Location and Monitoring System and describes possible domestic regulatory treatment as unlicensed systems. IAC Final Report at 299.

[162] HSWDS would also be required to demonstrate their ability to share with ARNS systems in the band.

event, as with the foregoing proposed additions to the WRC-97 agenda, it has yet to be demonstrated that an international allocation is necessary to implement this service in the U.S.[163]

98. A two-year conference cycle provides the flexibility and opportunity to make proposals to meet changes in a rapidly evolving telecommunications environment. In the United States, we have shown a willingness to take advantage of such opportunities as our domestic needs develop.[164] However, for long-term endeavors whose completion may span several conferences, there should be continuity from conference to conference to ensure that once started, all issues are resolved. Thus, we recommend that the primary focus of WRC-97 be the continued consideration of global satellite service issues. These include removing technical constraints where appropriate, easing unnecessary regulatory burdens, and obtaining additional spectrum to allow global satellite systems to go forward -- including those of new proposals such as Teledesic's proposal for a NGSO FSS network.[165] We will support at WRC-95 a proposal suggested by Teledesic to the IAC and by the federal government agencies to add to the WRC-97 agenda a primary allocation for the Inter-Satellite Service (ISS) in the band 65.0-71.0 GHz.[166] Further, consideration of the VGE's recommendations for simplifying the Radio Regulations may be an extremely time-consuming task which may also require continuation at upcoming WRCs. Additionally, there are numerous "smaller," but no less important topics that the U.S. has supported since preparations for WRC-93 that should be resolved before moving on to new topics. Finally, we should begin to introduce new subject matters for consideration to the extent conference time allows. While we do not offer a specific proposal for the WRC-97 agenda at this juncture, we will bring to WRC-95 position papers and associated draft proposals expressing our views on the WRC-97 agenda relative to the progress we observe at WRC-95.

99. WRC-99 Preliminary Agenda. The IAC Final Report and ARRL advocate consideration of an international amateur radio permit at WRC-99 to be similar to the reciprocal arrangements enjoyed under CEPT Recommendation T/R 61-01 or the International Amateur Radio Permit currently under consideration by the Organization of American States.[167] We will support consideration of an international amateur permit on the WRC-99 preliminary agenda.

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[163] Pending before the Commission are Petitions for Rule Making filed by Wireless Information Networks Forum and Apple Computer, Inc. requesting institution of domestic proceedings for unlicensed wireless data systems in the 5 GHz band.

[164] A case in point would be our domestic decision to satisfy an immediate need for a young, but more mature service -- PCS -- by allocating additional spectrum for PCS at the expense of MSS allocations we had obtained at WARC-92. At WRC-95, we seek to adjust the WARC-92 MSS allocations to promote development of global MSS. We see this flexibility as an advantage to biennial WRCs -- no administration need be unnecessarily locked into past allocations in the face of changing requirements.

[165] We will propose that WRC-97 consider allocations and regulatory aspects for non-GSO FSS systems in the Ka band. See Teledesic comments at 20-21.

[166] See IAC Final Report at 280, 317; Letter from Richard Parlow, Associate Administrator, NTIA to Richard Smith, Chief, Office of Engineering and Technology, May 4, 1995.

[167] IAC Final Report at 318-19; ARRL comments at 5-7.

VIII. CONFERENCE PREPARATORY PROCESSES

100. In the Notice, we observed that a review of the Commission's methods for preparing for international radiocommunication conferences should be undertaken to ensure continuing effective representation of U.S. interests in light of the ITU's new 2-year conference regime. The WRC cycle will require a continuous process of conference preparation in view of the long lead time required to develop proposals for any given conference.[168] In the Second Notice, we described the Commission's recent consolidation of its international functions into a single operating bureau and the creation of an office within the new bureau charged with ongoing responsibilities for WRC planning and related ITU-R activities.[169] We invited public comment on the topic of future FCC conference preparation methods and directed IWG-6 of the IAC to also study the question.

101. The IAC provides in its Final Report a well-considered discussion of the topic of conference preparatory processes including a proposed timeline for domestic conference preparatory activities.[170] The IAC points out that the ITU's new biennial conference cycle marks a dramatic change not only in the timing of the conferences, but also in their fundamental nature: "No longer is each WRC a self-contained special purpose conference. Rather each conference is part of a continuum of events with past, present and future issues on each agenda."[171] As a consequence of this change, the IAC concludes that the emphasis must be on continuous conference preparation, including ongoing IAC activities and improved coordination among the three primary government actors in the process -- FCC, NTIA and State -- and the private sector.[172] Specifically, the IAC recommends the following improvements: (1) the Commission should renew the IAC within three months after each WRC to commence preparation for the next WRC; (2) the Radiocommunication Policy Branch should oversee the IAC process and assist in the coordination process with NTIA and State; (3) the Notice of Inquiry for the next WRC should be initiated within three months after the last WRC and continue to be closely related to the IAC process; (4) the Commission should support a more open IRAC process and increased coordination by IRAC with the private sector; and (5) the Commission should develop, in cooperation with the NTIA and State, a timeline for the institution and completion of essential conference preparatory activities which provides for completion of the preparatory process in time for the second CPM meetings and coordination meetings of the Inter-American Telecommunications Commission (CITEL).[173] The comments also reflect these views.[174]

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[168] Notice, 9 FCC Rcd at 2438.

[169] Second Notice, 10 FCC Rcd at 4220-21. This office is the Radiocommunication Policy Branch of the International Bureau's Satellite and Radiocommunication Division.

[170] IAC Final Report at 320-27.

[171] Id. at 321.

[172] Id. at 321-22.

[173] Id. at 320-21.

102. We generally agree with the IAC's recommendations and plan to incorporate them into our conference preparatory process to the extent possible. We also support the timeline concept and its goal of developing draft recommended U.S. proposals in time for the CPM immediately preceding the WRC. In addition to allowing for more effective participation at the CPM, early development of proposals will permit timely discussions with other countries, most notably with Region 2 nations participating in the CITEL's WRC Preparatory Joint Working Group.[175] We will also undertake to renew the IAC's Charter and to select its new Chair immediately following WRC-95 and to adopt an initial Notice of Inquiry based on the WRC-97 agenda soon thereafter -- ideally within the first quarter of 1996.

103. Finally, the commenters and the IAC advance ideas on the formation of the U.S. delegation to WRCs and the private sector's ability to participate directly in the NTIA's preparatory activities and development of final U.S. proposals.[176] We generally support the views expressed by the commenters and IAC participants. We note in this regard that the head of the U.S. delegation to WRC-95 has decided to include a member of the private sector on his steering committee. Also, while the Commission cannot gain for the private sector direct access to NTIA, we note that government representatives have been working closely with the private sector as participants and contributors to the IAC, and that Commission staff has actively participated in NTIA's preparations for WRC-95. The Commission will continue to encourage openness in all facets of the proposal development process and to seek ways of promoting maximum participation of the private sector in all phases of conference preparation.

IX. PROCEDURAL MATTERS

104. The motion for acceptance of late-filed further reply comments filed by Alcatel Network Systems, Inc. and other FS interests on May 15, 1995, IS GRANTED.

105. Authority for issuance of this Report is contained in Sections 154(i), 303(g), 303(r), and 332(a) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 303(g), 303(r), and 332(a).

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[174] CMC comments at 27-28; CWS comments at 13-15; ORBCOMM comments at 11; USSB comments at 3; AMSC comments at 14; LQP comments at 31.

[175] See AMSC comments at 16; CWS comments at 13-15; CWS reply comments at 10-11; ARRL reply comments at 6.

[176] IAC Final Report at 323-24; CMC comments at 27-28; ORBCOMM comments at 13-14; USSB comments at 3-4; MCHI late comments at 11-12; NOAA reply comments at 13-14.

106. For further information concerning this proceeding, contact Damon C. Ladson, (202)739-0510, or Audrey L. Allison, (202)739-0557, of the International Bureau's Satellite and Radiocommunication Division, Radiocommunication Policy Branch.

FEDERAL COMMUNICATIONS COMMISSION

William F. Caton
Acting Secretary

APPENDIX 1

RECOMMENDED UNITED STATES PROPOSALS

UNITED STATES PROPOSALS

for the

WORLD RADIOCOMMUNICATION CONFERENCE

(GENEVA, 1995)

Washington, D.C.

June, 1995

RECOMMENDED UNITED STATES PROPOSALS

METHOD OF PRESENTATION

1. Services shown in all capital letters (*e.g.*, MOBILE-SATELLITE SERVICE) in the Allocation Table are services with primary status.
2. Services shown with an initial capital letter and the remaining letters in lower case (*e.g.*, Fixed) in the Allocation Table are services with secondary status.
3. Underlining (*e.g.*, Underlining) indicates new text proposed for adoption.
4. Strike-out text (*e.g.*) indicates existing text proposed for deletion.
5. NOC indicates provisions for which no change is proposed.
6. NOC indicates a matter of particular significance, for which it is important that no changes be made to the current provisions.
7. SUP indicates provisions that are proposed for suppression.
8. MOD indicates a proposed modification to the existing text.
9. (MOD) indicates proposed modifications that are strictly editorial in nature.
10. ADD indicates new provisions that are being proposed for addition.

Index to
RECOMMENDED UNITED STATES PROPOSALS

Section A	MSS Below 1 GHz
Section B	MSS Between 1 and 3 GHz
Section C	MSS Feeder Links
Section D	Modified Resolution 46
Section E	NGSO FSS Networks Around 28 GHz
Section F	VGE Task 1
Section G	VGE Task 2
Section H	VGE Task 3
Section I	Space Services

Section A

RECOMMENDED UNITED STATES PROPOSALS

Agenda Items 2.1a) & 3d)

MSS Below 1 GHz

Section B

RECOMMENDED UNITED STATES PROPOSALS

Agenda Items 2.1 a), 2.1b) & 3d)

MSS Between 1 and 3 GHz

Document WRC95/ -E
24 May 1995
Original: English

United States of America

Proposals for Agenda Items 2.1(a) and 3(d)

MOBILE-SATELLITE SERVICES BELOW 1 GHz

Introduction:

The attached U.S. proposals address issues related to mobile-satellite services (MSS) operating below 1 GHz. WARC-92 allocated 3.45 MHz of primary spectrum to this service. Since that time, the United States has licensed one non-geostationary MSS system to operate in these primary frequencies, and has six pending system applications. Satellites from the first system have already been launched.

Experience with the use of the MSS bands below 1 GHz, as well as recent studies of the ITU-R that are reflected in the Report of the Conference Preparatory Meeting (CPM), indicate that several modifications could be made to the existing MSS frequency allocations to facilitate their use. Proposals to facilitate the use of existing allocations for mobile-satellite services may be made pursuant to agenda item 2.1(a). Accordingly, the U.S. proposes to modify a number of footnotes to the 148-150.05 MHz band to improve coordination efforts in this band. In accordance with a suggestion from the Voluntary Group of Experts that allocations be made, where possible, to the broadest category of service, the U.S. further proposes to change the Land Mobile-Satellite allocation in the 149.9-150.05 MHz band to a more general Mobile-Satellite Service.

In addition to discussing the improvement of existing MSS allocations, the CPM Report states that 7-10 MHz of additional spectrum will be necessary to meet the near-term (that is, by the year 2000) requirements for MSS below 1 GHz. Both world wide operator demand and anticipated consumer demand support this conclusion. Because WRC-95 is empowered to make limited allocations to MSS pursuant to agenda item 3(d), if such allocations are necessary, the United States proposes to modify the international Table of Allocations to include 6.105 MHz of spectrum to be used by MSS, or associated feeder links, on a co-primary basis with existing users. The bands suggested for allocation to MSS include 216-216.5 MHz (space-to-Earth), 217.5-218 MHz (space-to-Earth), 399.9-400.05 MHz (Earth-to-space), 401-404 MHz (space-to-Earth, with the 401.2-401.7 MHz segment allocated to MSS on a secondary basis), 455-456 MHz (Earth-to-space) and 459-460 MHz (Earth-to-space).

Article 8 of the Radio Regulations

USA/ /1
NOC **599A**

Reason: The Report of the Conference Preparatory Meeting confirms that the pfd trigger level of -125 dB(W/m^2/4kHz) for coordination with terrestrial services is appropriate at this time.

MHz
148 - 150.05

USA/ /2
MOD

Allocation to Services		
Region 1	Region 2	Region 3
148-149.9 FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space) MOD599B 608 MOD608A 608C	**148-149.9** FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) MOD599B 608 MOD608A 608C	
149.9-150.05 ~~LAND~~ MOBILE-SATELLITE (Earth-to-space) MOD599B MOD609B RADIONAVIGATION-SATELLITE MOD608B 609 609A		

Reason: To allow for maximum flexibility in system implementation, the land mobile-satellite allocation in the 149.9 - 150.05 MHz band is proposed for any mobile-satellite service.

USA/ /3
MOD

599B
WARC-92

The use of the bands 137 - 138 MHz, 148 -149.9 MHz, 149.9 - 150.05 MHz, 399.9 - 400.05 MHz, ~~and~~ 400.15 - 401 MHz, 455 - 456 MHz and 459 - 460 MHz by the mobile-satellite service ~~and the band 149.9 - 150.05 MHz by the land mobile-satellite~~ is limited to non-geostationary-satellite systems.

Reason: Modification to Footnote 599B is required to reflect the allocation to the mobile-satellite service of the 149.9 - 150.05 MHz, 399.9 - 400.05 MHz, 455 - 456 MHz and 459 - 460 MHz bands. See USA/ /2, USA/ /9, USA/ /15 and USA/ /16, below.

USA/ /4
MOD

608A
WARC-92

The use of the band 148 -149.9 MHz by the mobile-satellite service is subject to the application of the coordination and notification procedures set forth in MOD Resolution 46 ~~(WARC-92)~~. The mobile-satellite service shall not constrain the development and use of fixed, mobile and space operation services in the band 148 - 149.9 MHz. Administrations using mobile earth stations in the mobile-satellite service shall ~~not produce power flux density in excess of -150 dB(W/m²/4kHz)~~ coordinate outside national boundaries through use of the coordination distance method in Recommendation ITU-R M.[Doc.8/46].

Reason: Modification of Footnote 608A is required because the -150 dB(W/m²/4kHz) has proven to be operationally unusable. A coordination distance threshold is a more useful approach to facilitate coordination across national boundaries; this approach is supported in the report of the CPM.

USA/ /5
MOD

608B
WARC-92

The use of the bands 149.9-150.05 MHz and 399.9 - 400.05 MHz by the ~~land~~ mobile-satellite service is subject to the application of the coordination and notification procedures set forth in MOD Resolution 46 ~~(WARC-92)~~. The ~~land~~ mobile-satellite service shall not constrain the development and use of the radionavigation-satellite service in the 149.9-150.05 MHz and 399.9 - 400.05 MHz bands . ~~Land mobile earth stations of the land mobile satellite service shall not produce power flux density in excess of 150 dB(W/m²/4 kHz) outside national boundaries.~~ Mobile earth stations in the mobile-satellite service shall coordinate outside of national boundaries through use of the coordination distance method in Recommendation ITU-R M.[Doc.8/46].

Reasons: Modification of Footnote 608B is required because the -150 dB(W/m²/4kHz) has proven to be operationally unusable. A coordination distance threshold is a more useful approach to facilitate coordination across national boundaries. This revision is supported in the report of the CPM. The removal of 'land' in Footnote 608B reflects the change in the allocation of the 149.9-150.05 MHz band to the mobile-satellite service. Further modification of Footnote 608B was also required to reflect the allocation of the 399.9 - 400.05 MHz band to the mobile-satellite service. See USA/ /9.

USA/ /6
MOD

609B
WARC-92
In the bands 149.9-150.05 MHz and 399.9-400.05 MHz, the allocation to the ~~land~~ mobile-satellite service shall be on a secondary basis until 1 January 1997.

Reason: The removal of "land" in Footnote 609B reflects the change in the allocation table to the mobile-satellite service. Further modification to Footnote 609B was required to reflect the allocation of the 399.9 - 400.05 MHz band to the mobile-satellite service.

MHz
216 -216.5

USA/ /7
MOD

Allocation to Services		
Region 1	Region 2	Region 3
216-216.5 BROADCASTING MOBILE-SATELLITE (space-to-Earth) 621 623 628 629	**216-216.5** FIXED MARITIME MOBILE MOBILE-SATELLITE (space-to-Earth) Radiolocation 627 627A	**216-216.5** FIXED MOBILE BROADCASTING MOBILE-SATELLITE (space-to-Earth) 626

Reason: To make available additional spectrum for MSS systems, in accordance with the Report of the CPM which notes that 7-10 MHz of additional spectrum will be required for MSS below 1 GHz.

MHz
217.5 -218

USA/ /8
MOD

Allocation to Services		
Region 1	Region 2	Region 3
217.5-218 BROADCASTING MOBILE-SATELLITE (space-to-Earth) 621 623 628 629	**217.5-218** FIXED MARITIME MOBILE MOBILE-SATELLITE (space-to-Earth) Radiolocation 627 627A	**217.5-218** FIXED MOBILE BROADCASTING MOBILE-SATELLITE (space-to-Earth) 626

Reason: To make available additional spectrum for MSS systems, in accordance with the Report of the CPM which notes that 7-10 MHz of additional spectrum will be required for MSS below 1 GHz.

MHz
399.9-400.05

USA/ /9
MOD

Allocation to Services		
Region 1	Region 2	Region 3
399.9-400.05 RADIONAVIGATION-SATELLITE MOBILE-SATELLITE (Earth-to-space) 609 645B MOD599B MOD608B MOD609B		

Reason: The TRANSIT system is being phased out of the 399.9 - 400.05 MHz band, making it available for a mobile-satellite service allocation. Footnote MOD609B is included to clarify that, in order to protect existing operations, MSS will be on a secondary basis until 1 January 1997.

MHz
401-402

USA/ /10
MOD

Allocation to Services		
Region 1	Region 2	Region 3
401-401.2	METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 648AB METEOROLOGICAL-SATELLITE (Earth-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) ~~Earth Exploration-Satellite (Earth-to-space)~~ Fixed ~~Meteorological-Satellite (Earth-to-space)~~ Mobile except aeronautical mobile 648AA	
401.2-401.7	METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) Mobile-Satellite (space-to-Earth) 648AB METEOROLOGICAL-SATELLITE (Earth-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) ~~Earth Exploration-Satellite (Earth-to-space)~~ Fixed ~~Meteorological-Satellite (Earth-to-space)~~ Mobile except aeronautical mobile 648AA	
401.7-402	METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) 648AB METEOROLOGICAL-SATELLITE (Earth-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) ~~Earth Exploration-Satellite (Earth-to-space)~~ Fixed ~~Meteorological-Satellite (Earth-to-space)~~ Mobile except aeronautical mobile 648AA 648AC	

MHz
402-406

USA/ /11
MOD

<table>
<tr><th colspan="3">Allocation to Services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td colspan="3">402-403 METEOROLOGICAL AIDS
MOBILE-SATELLITE (space-to-Earth)
648AB
METEOROLOGICAL-SATELLITE (Earth-to-space)
EARTH EXPLORATION-SATELLITE (Earth-to-space)
~~Earth Exploration-Satellite (Earth-to-space)~~
Fixed
~~Meteorological-Satellite (Earth-to-space)~~
Mobile except aeronautical mobile
648AA 648AC</td></tr>
<tr><td colspan="3">403-~~406~~404 METEOROLOGICAL AIDS
MOBILE-SATELLITE
(space-to-Earth) 648AB
Fixed
Mobile except aeronautical mobile
648AA</td></tr>
<tr><td colspan="3">404-406 METEOROLOGICAL AIDS
Fixed
Mobile except aeronautical mobile

648</td></tr>
</table>

Reason: The Report of the CPM states that additional spectrum will be necessary to meet the near-term requirements for MSS below 1 GHz. As a consequential change of adding primary allocations for the mobile-satellite service in the 401-401.2 and 401.7-404 MHz bands, it is necessary to upgrade the allocations for the meteorological-satellite and Earth exploration-satellite services to co-primary with mobile-satellite service (see also Resolution 710 (WARC-92)).

USA/ /12
ADD648AA The use of the bands 401-404 MHz by the mobile-satellite service is subject to the application of the coordination and notification procedures set forth in MOD Resolution 46. Until appropriate sharing criteria are developed in the 401- 404 MHz band, stations in the mobile-satellite service shall not cause harmful interference to the meteorological aids, meteorological- satellite, Earth exploration-satellite services, and the space operations service. In accordance with Resolution YYY sharing criteria to facilitate mobile-satellite services in these bands are to be developed as a matter of urgency by the ITU-R and reviewed by the next competent world radiocommunication conference. In making assignments to the space stations of the mobile-satellite service in the 401-404 MHz band, administrations shall take all practical steps to protect the radio astronomy service in the 406.1-410 MHz band from harmful interference from unwanted emissions. Unwanted emissions from mobile-satellite service space stations operating in the 401-404 MHz band shall not cause harmful interference to the mobile-satellite service in the 406-406.1 MHz band (649A applies).

-- **Reason**: RR648AA to ensure proper sharing criteria is developed by the ITU-R as outlined in Resolution YYY.

USA/ /13
ADD648AB

The use of the band 401-404 MHz by the mobile-satellite service is limited to non-geostationary satellite systems.

Reason: To enure that the band is limited to non-geostationary systems.

USA/ /14
ADD648AC

In the band 401.7 - 402.4 MHz, the aggregate power flux density produced at the geostationary orbit from transmission from space stations in a mobile satellite service network shall not exceec -162 dBW/m^2 per 4 kHz. In accordance with Resolution YYY this limit is to be reviewed by the ITU-R and may be revised by a future competent world radiocommunication conference.

Reason: RR648AC to ensure proper sharing criteria is developed by the ITU-R as outlined in Resolution YYY.

MHz
455-456

USA/ /15
MOD

Allocation to Services		
Region 1	Region 2	Region 3
455-456	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) MOD599B 653X 653 670	

Reason: To make available additional spectrum for MSS systems, in accordance with the Repor of the CPM which notes that 7-10 MHz of additional spectrum will be required for MSS below 1 GHz. Footnote MOD599B has been added to clarify that use of this frequency band is limited to use by non-geostationary satellite orbit systems. Footnote 653X has been added to clarify that the coordination and notification procedures of MOD Res. 46 apply to this band.

MHz
459-460

Allocation to Services		
Region 1	Region 2	Region 3
459-460	FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) MOD599B 653X 653 669 670	

USA/ /16
MOD

Reason: To make available additional spectrum for MSS systems, in accordance with the Report of the CPM which notes that 7-10 MHz of additional spectrum will be required for MSS below 1 GHz. Footnote MOD599B has been added to clarify that use of this frequency band is limited to use by non-geostationary satellite orbit systems. Footnote 653X has been added to clarify that the coordination and notification procedures of MOD Res. 46 apply to this band.

USA/ /17
ADD

653X The use of the bands 455 - 456 MHz and 459 - 460 MHz by the mobile-satellite service is subject to the application of the coordination and notification procedures set forth in MOD Resolution 46. Mobile earth stations in the mobile-satellite service shall coordinate outside of national boundaries through use of the coordination distance method in Recommendation ITU-R M.[Doc.8/46].

Reason: Footnote 653X is necessary to establish the coordination methodology for mobile-satellite systems operating pursuant to new MSS allocations in the 455 - 456 MHz and 459 - 460 MHz bands.

ADD RESOLUTION No. YYY (WRC-95)

Sharing Studies Concerning the Use of the Bands 401- 404 MHz by the Mobile-Satellite Service (space-to-Earth)

The World Radiocommunication Conference (Geneva, 1995),

considering

a) that agenda item 3(d) of this Conference requested the consideration, inter alia, of allocation of frequenc bands to the mobile-satellite service;

b) that this conference allocated spectrum in the 401-404 MHz band for non-geostationary mobile-satellite service;

c) that the bands 401-403 MHz and 403-404 MHz are also allocated to the meteorological-satellite, meteorological aids, space operation, and Earth exploration-satellite services;

d) that there is a need to determine the operational and technical means to facilitate sharing between the mobile satellite service and the services mentioned in c above;

e) that co-channel sharing between the mobile-satellite service and the meteorological aids service may be difficult;

f) that RR ADD 648C specifies a maximum power flux density at the geostationary satellite orbit from spac stations in the mobile satellite service;

resolves

1. that studies be undertaken as a matter of urgency by the ITU-R to develop the operational and technical measures that would facilitate sharing between the mobile satellite service and the services in considering c;

2. that the power flux density limit specified in RR ADD 648 AC at the geostationary satellite orbit for networks of the mobile satellite service in the 401.7 - 402.4 MHz band be reviewed and if necessary revised by the ITU-R;

3. that studies should be undertaken to determine the amount of spectrum needed in the 401-406 MHz band for the meteorological aids service to perform its intended functions;

4. that the World Meteorological Organization (WMO) be invited to participate in these sharing studies;

invites

1. the ITU-R to continue to study, as a matter of urgency, the technical and operational issues relating to the sharing of these bands between the services mentioned in c) above and the mobile-satellite service in the space-to-Earth direction;

2. administrations to participate actively in such studies by sending contributions to the ITU-R relating to the aforementioned studies;

3. the ITU-R to bring the results of these studies to the attention of the next competent world radiocommunication conference

instructs the Secretary-General

1. to bring this Resolution to the notice of WMO.

Document -E
14 June 1995
Original: English

United States of America

Proposals for Agenda Item 2.1a

MOBILE SATELLITE SERVICES BETWEEN 1 and 3 GHz

The following USA proposal addresses additional allocations for the Mobile Satellite Service (MSS) between 1 and 3 GHz. In developing these proposals the CPM Report to WRC-95 and the work of the ITU-R study groups was taken into account.

As described in the CPM report to WRC-95, the vast interest in the utilization of the MSS bands is evident from the over 250 satellite networks for which advance publication, coordination or notification data has been submitted to the ITU. Currently, world wide MSS allocations between 1 and 3 GHz total 200 MHz , with an additional 90 MHz limited to Region 2. However due to restrictions imposed by sharing these bands with other services, the actual available spectrum to MSS is much less. The CPM report estimates the minimum and likely spectrum requirements for the MSS service will range from 150 MHz to 300 MHz by the year 2005. Taking this into account, the current allocations to MSS are not sufficient to support all the MSS requirements during the period of 2000 - 2005.

The proposal outlined here will provide additional allocations to MSS while continuing to take account of other existing services in the proposed bands. Recognizing the global nature of the MSS service, we are proposing wherever possible allocations on a world-wide basis, which require in some cases realignment of existing Region 2 MSS allocations.

This proposal also incorporates ITU-R recommendations which provide sharing criteria to permit compatible operations between MSS and other radio services. Adoption of these proposals will allow MSS and other radio services to operate more efficiently in shared frequency bands.

Article 8 of the Radio Regulations

MHz
1525 - 1530

USA/ /1
MOD

Allocation to Services		
Region 1	Region 2	Region 3
1525 - 1530 SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) ~~MARITIME MOBILE-SATELLITE (space-to-Earth)~~ Earth Exploration-Satellite ~~Land Mobile-Satellite (space-to-Earth) 726B~~ Mobile except aeronautical mobile 724 722 723B 725 726A 726D	**1525 - 1530** SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) Earth Exploration-Satellite Fixed Mobile 723 722 723A 726A 726D	**1525 - 1530** SPACE OPERATION (space-to-Earth) FIXED MOBILE-SATELLITE (space-to-Earth) Earth Exploration-Satellite Mobile 723 724 722 726A 726D

Reason: This modification provides an allocation to the mobile-satellite service instead of the current limitation to maritime and land mobile satellite services. The allocation changes will facilitate the introduction of mobile-satellite services globally. This is in accordance with the VGE recommendation that spectrum be allocated to the most broadly defined services in order to provide maximum flexibility to administrations.

USA/ /2
SUP **726B**

Reason: The suppression of Footnote 726B is consequential to the proposed allocation modification.

MHz
1530 - 1533

USA/ /3
MOD

Allocation to Services		
Region 1	Region 2	Region 3
1530 - 1533 SPACE OPERATION (space-to-Earth) MOBILE-SATELLITE (space-to-Earth) ~~MARITIME MOBILE SATELLITE (space-to-Earth)~~ ~~LAND MOBILE-SATELLITE (space-to-Earth)~~ Earth Exploration-Satellite Fixed Mobile except aeronautical mobile 722 723B 726A MOD 726C 726D	1530 - 1533 SPACE OPERATION (space-to-Earth) ~~MARITIME MOBILE SATELLITE (space-to-Earth)~~ MOBILE-SATELLITE (space-to-Earth) ~~LAND MOBILE SATELLITE (space-to-Earth)~~ Earth Exploration-Satellite Fixed Mobile 723 722 726A MOD 726C 726D	

Reason: This modification provides an allocation to the mobile-satellite service to replace the limited maritime and land mobile satellite service allocation. This will facilitate the introduction of mobile-satellite services globally, and is in accordance with the VGE recommendation that spectrum be allocated to the most broadly defined services in order to provide maximum flexibility to administrations.

USA/ /4
MOD

726C ~~*Additional allocation:* in Argentina, Australia, Brazil, Canada, the United States, Malaysia and Mexico, the band 1530 - 1544 MHz is also allocated to the mobile-satellite (space-to-Earth) service, and the band 1626.5 - 1645.5 MHz is also allocated to the mobile-satellite (Earth-to-space) service, on a primary basis subject to the following conditions:~~ The allocation of the bands 1530 - 1544 MHz and 1626.5 - 1645.5 MHz to the mobile-satellite (space-to-Earth) service is subject to the following conditions: the maritime mobile-satellite distress and safety communications shall have priority access and immediate availability over all other mobile-satellite communications operating under this provision. Communications of mobile-satellite system stations not participating in the global maritime distress and safety system (GMDSS) shall operate on a secondary basis to distress and safety communications of stations operating in the GMDSS. Account shall be taken of the priority of safety-related communications in the other mobile-satellite services.

Reason: The modification of Footnote 726C will ensure priority access and immediate availability for maritime distress and safety communications throughout the world while providing the capability to support additional mobile satelllite services.

MHz
1533 - 1559

	Allocation to Services		
	Region 1	Region 2	Region 3
USA/ /5 MOD	**1533 - 1535** SPACE OPERATION (space-to-Earth) ~~MARITIME MOBILE SATELLITE (space-to-Earth)~~ MOBILE-SATELLITE (space-to-Earth) Earth Exploration-Satellite Fixed Mobile except aeronautical mobile ~~Land Mobile Satellite (space-to-Earth) 726B~~ 722 723B 726A MOD 726C 726D	**1533 - 1535** SPACE OPERATION (space-to-Earth) ~~MARITIME MOBILE SATELLITE (space-to-Earth)~~ MOBILE-SATELLITE (space-to-Earth) Earth Exploration-Satellite Fixed Mobile 723 ~~Land Mobile Satellite (space-to-Earth) 726B~~ 722 726A MOD 726C 726D	
USA/ /6 MOD	**1535 - 1544** ~~MARITIME MOBILE SATELLITE (space-to-Earth)~~ ~~Land Mobile Satellite (space-to-Earth) 726B~~ MOBILE-SATELLITE (space-to-Earth) 722 726A MOD 726C 726D 727		
USA/ /7 MOD	**1544 - 1545** MOBILE-SATELLITE (space-to-Earth) 722 726D 727 727A		
USA/ /8 MOD	**1545 - 1555** ~~AERONAUTICAL MOBILE SATELLITE (R) (space-to-Earth)~~ MOBILE-SATELLITE (space-to-Earth) 722 726A 726D 727 729 ~~729A~~ 730 MOD 730C		
USA/ /9 MOD	**1555 - 1559** ~~LAND MOBILE SATELLITE (space-to-Earth)~~ MOBILE-SATELLITE (space-to-Earth) 722 726A 726D 727 730 ~~730A~~ ~~730B~~ MOD 730C		

Reasons: These modifications provide an allocation to the mobile-satellite service to replace the limited aeronautical, land, or maritime mobile satellite service allocations. This will facilitate the introduction of mobile-satellite services globally, and is in accordance with the VGE recommendation that spectrum be allocated to the most broadly defined services in order to provide maximum flexibility to administrations.

USA/ /10
SUP **729A**

Reason: The suppression of Footnote 729A is consequential to proposed allocation modifications.

USA/ /11
SUP **730A**

Reason: The suppression of Footnote 730A is consequential to proposed allocation modifications.

USA/ /12
SUP **730B**

Reason: The alternative allocations in this footnote are reflected in the proposed primary allocations as modified. The footnote is therefore unnecessary.

USA/ /13
MOD **730C** ~~Alternative allocation: in Argentina and the United States the band 1555 - 1559 MHz is allocated to the mobile satellite (space to Earth) service, the band 1656.5 1660 MHz is allocated to the mobile satellite (Earth to space) service, and the band 1660 - 1660.5 MHz is allocated to the mobile satellite (Earth to space) and radio astronomy services, on a primary basis subject to the following conditions:~~ In the bands 1545 - 1559 MHz and 1646.5 - 1660.5 MHz, the aeronautical mobile-satellite (R) service shall have priority access and immediate availability over all other mobile-satellite communications within a network operating under this provision; mobile-satellite systems shall be interoperable with the aeronautical mobile-satellite (R) service; account shall be taken of the priority of safety-related communications in the other mobile-satellite services.

Reason: The modification of Footnote 730C will ensure priority access and immediate availability for aeronautical distress and safety communications throughout the world while providing the capability to support additional mobile satellite services.

USA/ /14
MOD **731E** The use of the band 1610-1626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth-to-space) is subject to the application of the coordination and notification procedures set forth in **MOD** Resolution 46 (~~WARC-92~~). A mobile earth station operating in either of the services in this band shall not produce ~~an~~ a peak e.i.r.p. density in excess of -15 dB (W/4 kHz) in the part of the band used by systems operating in accordance with the provisions of No. 732, unless otherwise agreed by the affected administrations. In the part of the band where such systems are not operating, a mean value of -3 dB (W/4 kHz) is applicable. ~~Stations of the mobile satellite service shall not cause harmful interference to, or claim protection from, stations in the aeronautical radionavigation service, stations operating in accordance with the provisions of No. 732 and stations in the fixed service operating in accordance with the provisions on No. 730.~~ The provisions of No. 953 apply to the use of the 1610 - 1626.5 MHz band.

Reason: Inclusion of the terms "peak" and "mean" are to clarify how the e.i.r.p. density limit should be measured. The text proposed for deletion at the end of this provision is unnecessary to protect the primary allocation status of the identified services and creates confusion and ambiguity concerning the primary status of the mobile-satellite service in the 1610-1626.5 MHz band. The addition of text to reference RR953 is to ensure that special measures to avoid harmful interference to safety communications are taken into account.

USA/ /15
MOD 733 The bands ~~1610 - 1626.5 MHz~~, 5000 - 5250 MHz and 15.4 -15.7 GHz are also allocated to the aeronautical mobile-satellite (R) service on a primary basis. Such use is subject to agreement obtained under the procedure set forth in Article 14.

Reason: In the band 1 610 - 1 626.5, the aeronautical mobile satellite (R) service reservation contained in this footnote is not required since it is adequately reflected in the primary allocation for mobile satellite service.

NOTE: Other modifications to RR 733, in the 5000 -5250 MHz and 15.4 - 15.7 GHz bands, are proposed in other documents. The final footnote would need to reflect all adopted modifications.

MHz
1626.5 - 1660.5

<table>
<tr><th></th><th colspan="3">Allocation to Services</th></tr>
<tr><th></th><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td>USA/ /16
MOD</td><td>1626.5 - 1631.5
~~MARITIME MOBILE SATELLITE (Earth-to-space)~~
MOBILE-SATELLITE (Earth-to-space)
~~Land Mobile Satellite (Earth-to-space) 726B~~
722 726A MOD 726C 726D 727 730</td><td colspan="2">1626.5 - 1631.5
MOBILE-SATELLITE (Earth-to-space)
722 726A MOD 726C 726D 727 730</td></tr>
<tr><td>USA/ /17
MOD</td><td colspan="3">1631.5 - 1634.5 ~~MARITIME MOBILE SATELLITE (Earth-to-space)~~
~~LAND MOBILE SATELLITE (Earth-to-space)~~
MOBILE-SATELLITE (Earth-to-space)
722 726A MOD 726C 726D 727 730 ~~734A~~</td></tr>
<tr><td>USA/ /18
MOD</td><td colspan="3">1634.5 - 1645.5 ~~MARITIME MOBILE SATELLITE (Earth-to-space)~~
~~Land Mobile Satellite (Earth-to-space) 726B~~
MOBILE-SATELLITE (Earth-to-space)
722 726A MOD 726C 726D 727 730</td></tr>
<tr><td>USA/ /19
MOD</td><td colspan="3">1645.5 - 1646.5 MOBILE-SATELLITE (Earth-to-space)
722 726D 734B</td></tr>
</table>

	Allocation to Services		
	Region 1	Region 2	Region 3
USA/ /20 **MOD**	**1646.5 - 1656.5** MOBILE-SATELLITE (Earth-to-space) ~~AERONAUTICAL MOBILE SATELLITE (R) (Earth-to-space)~~ 722 726A 726D 727 ~~729A~~ 730 MOD 730C 735		
USA/ /21 **MOD**	**1656.5 - 1660** MOBILE-SATELLITE (Earth-to-space) ~~LAND MOBILE SATELLITE (Earth-to-space)~~ 722 726A 726D 727 730 ~~730A~~ ~~730B~~ MOD 730C ~~734A~~		
USA/ /22 **MOD**	**1660 - 1660.5** RADIO ASTRONOMY ~~LAND MOBILE SATELLITE (Earth-to-space)~~ MOBILE-SATELLITE (Earth-to-space) 722 726A 726D ~~730A~~ ~~730B~~ MOD 730C 736		

Reasons: These modifications provide an allocation to the mobile-satellite service to replace the limited aeronautical, land, or maritime mobile satellite service allocations in the 1626.5 - 1660.5 MHz band. This will facilitate the introduction of mobile-satellite services globally and is in accordance with the VGE recommendation that spectrum be allocated to the most broadly defined services in order to provide maximum flexibility to administrations.

USA/ /23
SUP **734A**

Reason: This footnote is unnecessary because MOD Resolution 46 provides the notification and coordination procedures that will appropriately handle interference between MSS and Fixed services in these bands.

MHz
1930 - 2025

	Allocation to Services		
	Region 1	Region 2	Region 3
USA/ /24 **MOD**	**1930 - ~~1970~~ 1945** FIXED MOBILE 746A	**1930 - ~~1970~~ 1945** FIXED MOBILE ~~Mobile-Satellite~~ ~~(Earth-to-space)~~ 746A	**1930 - ~~1970~~ 1945** FIXED MOBILE 746A
USA/ /25 **MOD**	**1945 - 1970** FIXED MOBILE 746A	**1945 - 1970** FIXED MOBILE Mobile-Satellite (Earth-to-space) 746A	**1945 - 1970** FIXED MOBILE 746A
USA/ /26 **MOD**	**1970 - 1980** FIXED MOBILE 746A	**1970 - 1980** FIXED MOBILE ~~MOBILE-SATELLITE~~ Mobile-Satellite (Earth-to-space) 746A MOD 746B 746C	**1970 - 1980** FIXED MOBILE 746A
USA/ /27 **MOD**	**1980 -1990** FIXED MOBILE ~~MOBILE-SATELLITE~~ ~~(Earth-to-space)~~ 746A MOD 746B 746C	**1980 -1990** FIXED MOBILE ~~MOBILE-SATELLITE~~ Mobile-Satellite (Earth-to-space) 746A MOD 746B 746C	**1980 -1900** FIXED MOBILE ~~MOBILE-SATELLITE~~ ~~(Earth-to-space)~~ 746A MOD 746B 746C
USA/ /28 **MOD**	**~~1980~~ 1990 - 2010** FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 746A MOD 746B 746C		
USA/ /29 **MOD**	**2010 - 2025** FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 746A 746D		

Reasons: This modification realigns the existing mobile-satellite service allocation and provides an additional allocation to the service on a world-wide basis and is consistent with developing fixed and mobile services. This modification will facilitate the introduction of mobile-satellite services globally and follows the VGE recommendation that spectrum be allocated on a world-wide basis.

USA/ /30
MOD **746B** The use of the bands 1970 - 2010 MHz and 2160 - 2200 MHz by the mobile-satellite service shall not commence before 1 January 2005 and is subject to the application of the coordination and notification procedures set forth in **MOD**Resolution **46 ~~(WARC-92~~)**. In the band 2160 - 2200 MHz coordination of space stations of the mobile-satellite service with respect to terrestrial services is required only if the power flux density or Fractional Degradation Percentage produced at the Earth's Surface exceeds the threshold ~~limits in No. 2566~~, in Recommendation ITU-R IS. [Document 2/6]. In respect of assignments operating in this band, the provisions of Section II, paragraph 2.2 of **MOD**Resolution **46 ~~(WARC-92)~~** shall also be applied to geostationary transmitting space stations with respect to terrestrial stations.

Reason: The modification to footnote 746B will facilitate the introduction of mobile-satellite systems in this band by providing updated technical coordination limits.

USA/ /31
ADD **746D** The use of the band 2 010 - 2 025 MHz is subject to the application of the coordination and notification procedures set forth in MOD Resolution 46.

Reason: Footnote 746D provides the technicatl basis for use of the 2010 2025 MHz band by the MSS.

MHz
2160 - 2170

	Allocation of Services		
	Region 1	Region 2	Region 3
USA/ /32 **MOD**	**2160 - ~~2170~~ 2165** FIXED MOBILE 746A	**2160 - ~~2170~~ 2165** FIXED MOBILE ~~MOBILE-SATELLITE~~ Mobile-Satellite (space-to-Earth) 746A MOD 746B 746C	**2160 -~~2170~~ 2165** FIXED MOBILE 746A
USA/ /33 **MOD**	**2165 - 2170** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 746A MOD 746B	**2165 - 2170** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 746A MOD 746B 746C	**2165 - 2170** FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 746A MOD 746B

Reason: This modification will provide a world-wide allocation for the mobile-satellite service and facilitate the introduction of mobile-satellite type services on a global basis. This is in accordance with the VGE recommendation that spectrum be allocated on a world-wide basis.

USA/ /34
MOD **753F** The use of the band 2 483.5 - 2 500 MHz by the mobile-satellite service and the radiodetermination-satellite service is subject to the application of the coordination and notification procedures set forth in **MOD**Resolution **46** ~~**(WARC-92)**~~ . Coordination of space stations of the mobile-satellite and radiodetermination-satellite services with respect to terrestrial services is required only if the power-flux density produced at the Earth's surface exceeds: ~~the limits in No. 2566.~~

-150 dB (W/m^2) in any 4 kHz band for angles of arrival between 0 and 5° above the horizontal plane;

-150 + 0.65 (δ-5) dB (W/m^2) in any 4 kHz band for angles of arrival δ (°) between 5 and 25° above the horizontal plane;

-137 dB (W/m^2) in any 4 kHz band for angles of arrival between 25 and 90° above the horizontal plane.

These limits relate to the power flux-density which would be obtained under assumed free-space conditions. See Recommendation ITU-R IS [Document 2/6]. **In respect of assignments operating in this band, the provisions of Section II, paragraph 2.2 of MODResolution 46 ~~(WARC-92)~~ shall also be applied to geostationary transmitting space stations with respect to terrestrial stations.** Administrations are urged to take all practicable steps to prevent harmful interference to the radio astronomy service from emissions in the 2 483.5 - 2 500 MHz band, especially those caused by second-harmonic radiation that would fall into the 4 990 - 5 000 MHz band allocated exclusively to the radio astronomy service worldwide.

Reason: As stated in the CPM-95 report, this modification will reduce the number of coordinations required between the mobile-satellite service and the fixed service, while providing adequate protection to the fixed service systems in this band.

Section C

RECOMMENDED UNITED STATES PROPOSALS

Agenda Items 2.1c) & 3d)

MSS Feeder Links

Document -E
14 June 1995
Original: English

United States of America

Proposals for Agenda Items 2.1c and 3d

ALLOCATIONS FOR FEEDER LINKS FOR THE MOBILE-SATELLITE SERVICES

Introduction:

The WARC-92 allocated spectrum in the 1.6/2.4 GHz frequency bands for mobile-satellite services. The United States has since licensed three non-geostationary mobile-satellite systems to operate in these frequency bands. Two additional U.S. non-geostationary mobile-satellite systems may also be licensed after January 1996. The first U.S. 1.6/2.4 GHz non-geostationary mobile-satellite launch is expected to occur prior to the WRC-97.

In addition to 1.6/2.4 GHz service link allocations for these mobile-satellite networks, allocations for feeder link operations are necessary. Feeder link networks are needed to complete the service link transmission paths, process the information being transmitted, and interconnect the system with other radiocommunication networks or with other mobile earth stations. Though feeder link earth stations for non-geostationary mobile-satellite systems would operate at fixed locations, and they would operate in frequency bands allocated to the fixed-satellite service according to No. [22], the WRC-95 must allocate specific frequency bands for feeder link networks to operate on a co-primary basis with geostationary fixed-satellite networks and other radiocommunication services.

In preparation for the WRC-95, ITU-Radiocommunication Study Groups and Task Groups have defined spectrum requirements for various non-geostationary mobile-satellite service feeder link networks, identified candidate frequency bands for non-geostationary mobile-satellite service feeder links in the 4 to 8 GHz, 8 to 16 GHz, and 16 to 30 GHz frequency ranges, and evaluated the sharing possibilities with current and future users of the candidate frequency bands. Output from these groups has formed the technical basis for the CPM-95. The United States proposals to modify the international Table of Frequency Allocations in the 4 to 30 GHz range, contained herein, are to support immediate and actual needs of the mobile-satellite serivce and are based on the output from the CPM-95 and the recommendation by the VGE to simplify the Radio Regulations.

MHz
4800-5725

USA/ /1 MOD

Allocation To Services		
Region 1	Region 2	Region 3
5000-~~5250~~ **5150**	AERONAUTICAL RADIONAVIGATION MOD 733 [S5.367] MOD 796 [S5.444] MOD 797 [S5.445] ~~797A [S5.446] 797B [S5.447]~~ 797D [S5.447B] 797E [S5.447C]	
5150-5250	AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE (Earth-to-space) 797C [S5.447A] ~~733 [S5.367] 796 [S5.444] 797 [S5.445]~~ MOD 797A [S5.446] MOD 797B [S5.447] 797E [S5.447C]	

Reason: Revisions to the Table in the band 5000-5250 MHz are necessary to allocate spectrum specifically for feeder links in the 4 to 8 GHz frequency range to support current and immediate requirements of mobile-satellite services provided from non-geostationary satellite networks. The CPM-95 indicated that studies have shown that co-frequency sharing between microwave landing systems and non-geostationary mobile-satellite service gateway earth stations may be technically feasible. Additionally, the CPM-95, recognizing the safety aspects of microwave landing systems, has recommended that non-geostationary mobile-satellite service feeder links and microwave landing systems should use non-overlapping spectrum. Modification to Nos. 733 [S5.367] 796 [S5.444], 797 [S5.445], 797A [S5.446] and 797B [S5.447] and addition of Nos. 797C [S5.447A], 797D [S5.447B] and 797E [S5.447C] is therefore consequential. A potential paired band in the space-to-Earth direction of transmission could be 6650-7075 MHz.

NOTE: Proposed modification of footnote No. 733 involves frequency bands other than 5000-5250 MHz. In the event that additional proposals are adopted by the Conference which include the modification of No. 733, the final footnote would need to include a combination of all proposals in an amended table of allocations [see Document -E].

USA/ /2 MOD
733 [S5.367] The bands ~~1610-1626.5 MHz, 5000-5250~~ 5000-5150 MHz, ~~15.4-15.7~~ 15.4-15.45 GHz, and 15.65-15.7 GHz are also allocated to the aeronautical mobile-satellite (R) service on a primary basis. Such use is subject to agreement obtained under the procedure set forth in Article 14 [S9].

Reason: In the band 1610-1626.5 MHz, the aeronautical mobile satellite (R) service reservation contained in this footnote is adequately reflected in the primary allocation for mobile satellite service [see also Document -E regarding No. 733 [S5.367]]. Also, the CPM-95 did not identify current use of the 5000-5250 MHz or 15.4-15.7 GHz bands by the aeronautical mobile-satellite (R) service in accordance with No. 733 [S5.367]. Further, the CPM-95 indicated that no sharing studies have been conducted to assess the feasibility of sharing between the aeronautical mobile-satellite (R) service and non-geostationary mobile-satellite service feeder links in these bands. Therefore, modification of No. 733 [S5.367] permits use by the *aeronautical mobile-satellite (R)* service in the 5000-5150 MHz, 15.4-15.45 GHz, and 15.65-15.7 GHz bands.

USA/ /3 MOD
796 [S5.444]

The band 5000-~~5250~~ 5150 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. The requirements of this system shall take precedence over other uses of the 5000-5090 MHz band. *In the event that requirements of microwave landing system cannot be met in the 5000-5090 MHz band, future operations of the microwave landing system may extend into the 5090-5150 MHz band. After January 1, 2015, the microwave landing system shall take precedence over other uses of the 5000-5150 MHz band.*

Reason: Modification of No. 796 [S5.444] would incorporate the alternative microwave landing system expansion plan discussed internationally, and as indicated by the CPM-95, would articulate the transition plan with initial operations in the 5030-5090 MHz band and subsequent expansion (subject to need) into the 5000-5150 MHz band.

USA/ /4 MOD
797 [S5.445]

The bands ~~5000-5250~~ 5000-5150 MHz, ~~15.4-15.7~~ 15.4-15.45 GHz, and 15.65-15.7 GHz are also allocated to the fixed-satellite service and the inter-satellite service, for connection between one or more earth stations at specified fixed points on the Earth and space stations, when these services are used in conjunction with the aeronautical radionavigation and/or aeronautical mobile (R) service. Such use is subject to agreement obtained under the procedure set forth in Article 14 [S9].

Reason: The CPM-95 did not identify current use of the 5000-5250 MHz band by the fixed-satellite and inter-satellite services used in conjunction with the aeronautical radionavigation service and/or with the aeronautical mobile (R) services in accordance with No. 797 [S5.445]. It indicated further that no sharing studies have been conducted to assess the feasibility of sharing between the non-geostationary mobile-satellite service feeder links and these services in the 5000-5250 MHz band. Therefore, modification of No. 797 [S5.445] permits use by the fixed-satellite and inter-satellite services used in conjunction with the aeronautical radionavigation service and/or with the aeronautical mobile (R) services in the 5000-5150 MHz, 15.4-15.45 GHz, and 15.65-15.7 GHz bands.

USA/ /5 MOD
797A [S5.446]

Additional Allocation: in the countries listed in Nos. 733B [S5.369] and 733C [S5.400], and subject to agreement obtained under the procedure set forth in Article 14 [S9], the band 5150-5216 MHz is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis. In Region 2, the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a primary basis. In Regions 1 and 3, except those countries listed in Nos. 733B [S5.369] and 733C [S5.400], the band is also allocated to the radiodetermination-satellite service (space-to-Earth) on a secondary basis. The use by the radiodetermination-satellite service is limited to feeder links in conjunction with the radiodetermination-satellite service operating in the bands 1610-1626.5 MHz and/or 2483-2500 MHz. The total power flux-density at the Earth's surface shall in no case exceed -159 dBW/m^2 in any 4kHz band for all angles of arrival.

Reason: Modification of No. 797A [S5.446] would be consistent with VGE proposals to simplify the Radio Regulations.

USA/ /6 MOD
797B [S5.447]

Additional Allocation: in the Federal Republic of Germany, Austria, Belgium, Denmark, Spain, Finland, France, Greece, Israel, Italy, Japan, Jordan, Lebanon, Liechtenstein, Luxembourg, Malta, Morocco, Norway, Pakistan, the Netherlands, Portugal, the United Kingdom, Sweden, Switzerland, Syria, and Tunisia, the band 5150-5250 is also allocated to the mobile service, on a primary basis and subject to the agreement obtained under the procedure set forth in Article 14 [S9].

Reason: Modification of No. 797B [S5.447] would be consistent with VGE proposals to simplify the Radio Regulations.

USA/ /7 ADD
797C [S5.447A]

Use of the band 5150-5250 MHz by the fixed-satellite service in the Earth-to-space direction of transmission is limited to feeder links for non-geostationary satellite systems of the mobile-satellite service (see Resolution XXX). The provisions of No. 2613 [S22.2] do not apply to the fixed-satellite service in the Earth-to-space direction of transmission.

Reason: The CPM-95 has indicated that Earth-to-space operation of non-geostationary mobile-satellite service feeder links in the 5000-5250 MHz band may be technically feasible. Therefore, ADD No. 797C [S5.447A] allocates the 5150-5250 MHz band in this specific direction of transmission to the fixed-satellite service and limits the allocation to non-geostationary mobile-satellite service feeder links. The CPM-95 has also indicated that procedural revisions would be necessary to provide a regulatory base which would permit the orderly operation of non-geostationary mobile-satellite service feeder links without any regulatory uncertainties to their full operational life. Consequently, the provisions of No. 2613 [S22.2] would not apply in this band for non-geostationary mobile-satellite service feeder links in the Earth-to-space direction of transmission.

USA/ /8 ADD
797D [S5.447B]

The band 5090-5150 MHz is also allocated to the fixed-satellite service in the Earth-to-space direction of transmission on a primary basis and is limited to feeder links for non-geostationary satellite systems of the mobile-satellite service. The provisions of No. 2613 [S22.2] do not apply to the fixed-satellite service in the Earth-to-space direction of transmission. After January 1, 2010, no new assignments will be made to stations in the fixed-satellite service. After January 1, 2015, existing fixed-satellite service stations will become secondary to stations in the aeronautical radionavigation service and associated safety related systems. Sharing between the fixed-satellite service and aeronautical radionavigation services or associated aeronautical safety systems shall be based on appropriate sharing criteria, including technical and operational constraints, to be developed by the ITU-R and reviewed by a future competent World Radio Conference (see Resolution XXX). Prior to January 1, 2015, all practicable steps shall be taken to avoid mutual interference between the aeronautical radionavigation service and associated safety related systems and the fixed-satellite service in the band 5090-5150 MHz.

Reason: The CPM-95 has indicated that Earth-to-space operation of non-geostationary mobile-satellite service feeder links in the 5000-5250 MHz band may be technically feasible. Therefore, ADD No. 797D [S5.447B] allocates also the 5090-5150 MHz band in this specific direction of transmission to the fixed-satellite service and limits the allocation to non-geostationary mobile-satellite service feeder links. The CPM-95 has also indicated that procedural revisions would be necessary to provide a regulatory base which would permit the orderly operation of non-geostationary mobile-satellite service feeder links without any regulatory uncertainties to their full operational life. Consequently, the provisions of No. 2613 [S22.2] would not apply in this band for non-geostationary mobile-satellite service feeder links in the Earth-to-space direction of transmission.

USA/ /9 ADD
797E [S5.447C] The use of the band 5090-5250 MHz by the fixed-satellite service in the Earth-to-space direction of transmission is subject to the application of the coordination and notification procedures set forth in MOD Resolution 46.

Reason: The application of the coordination and notification procedures set forth in MOD Resolution 46 would be necessary for shared use of the 5090-5250 MHz band by non-geostationary mobile-satellite service feeder links.

MHz
5725-7300

USA/ /10 MOD

Allocation To Services		
Region 1	Region 2	Region 3
5925-7075 FIXED FIXED-SATELLITE (Earth-to-space) MOD 792A [S5.441] (space-to-Earth) 809A [S5.458A] MOBILE 791 [S5.440] 809 [S5.458] 809B [S5.458B]		

Reason: Revisions to the Table in the 5925-7075 MHz band are necessary to allocate spectrum specifically for feeder links in the 4 to 8 GHz frequency range to support current and immediate requirements of mobile-satellite services provided from non-geostationary satellite networks. The CPM-95 indicated that studies have shown that bi-directional spectrum sharing between the geostationary fixed-satellite service and non-geostationary mobile-satellite service feeder link networks is technically feasible given careful site selection and antenna sizing, and depending on the number of gateway earth stations. Modification of No. 792A [S5.441] and addition of Nos. 809A [S5.458A] and 809B [S5.458B] is therefore consequential. The amount of spectrum proposed for the space-to-Earth direction is greater than in the Earth-to-space direction of transmission in the 4 to 8 GHz range because, as indicated by the CPM-95, more than two non-geostationary mobile-satellite service feeder link networks plan to operate in the space-to-Earth direction in the 6650-7075 MHz band. Potentially, two paired bands in the Earth-to-space direction of transmission could be 5000-5250 MHz and 15.4-15.7 GHz.

USA/ /11 MOD
792A [S5.441] The use of the bands 4500-4800 MHz (space-to-Earth), 6725-7025 MHz (Earth-to-space), 10.7-10.95 GHz (space-to-Earth), 11.2-11.45 GHz (space-to-Earth) and 12.75-13.25 GHz (Earth-to-space), by the fixed-satellite service shall be in accordance with the provisions of Appendix 30B [S30B].

Reason: The CPM-95 indicated that co-directional sharing is not feasible between the geostationary fixed-satellite service and non-geostationary mobile-satellite service feeder links in the frequency bands identified in No. 792A [S5.441]. It did, however, indicate that bi-directional spectrum sharing between the geostationary fixed-satellite service and non-geostationary mobile-satellite service feeder link networks is technically feasible in these bands. MOD 792A [S5.441] would therefore identify the specific direction of transmission for each of the allotment planned bands to which the provisions of Appendix 30B [S30B] would continue to apply and clarify the direction of transmission for each frequency band where bi-directional frequency sharing between the geostationary fixed-satellite service and non-geostationary mobile-satellite service feeder links would be feasible.

USA/ /12 ADD

809A [S5.458A] The band 6650-7075 MHz may also be used by to the fixed-satellite service in the space-to-Earth direction of transmission. Use of the band by the fixed-satellite service is limited to feeder links for non-geostationary satellite networks of the mobile-satellite service. The provisions of No. **2613** [S22.2] do not apply to the fixed-satellite service in this band in the space-to-Earth direction of transmission.

Reason: The CPM-95 has indicated that bi-directional sharing between non-geostationary mobile-satellite service feeder links in the space-to-Earth direction and geostationary fixed-satellite service networks operating in the Earth-to-space direction in the 6650-7075 MHz band is technically feasible. Therefore, ADD No. 809A [S5.458A] allocates the 6650-7075 MHz band to the fixed-satellite service in the space-to-Earth direction of transmission and limits the allocation to non-geostationary mobile-satellite service feeder links. The CPM-95 has also indicated that procedural revisions would be necessary to provide a regulatory base which would permit the orderly operation of non-geostationary mobile-satellite service feeder links without any regulatory uncertainties to their full operational life. Consequently, the provisions of No. 2613 [S22.2] would not apply in this band for non-geostationary mobile-satellite service feeder links in the space-to-Earth direction of transmission.

USA/ /13 ADD
809B [S5.458B] The use of the band 6650-7075 MHz by the fixed satellite service in the space-to-Earth direction of transmission is subject to the application of the coordination and notification procedures set forth in MOD Resolution 46. Emissions from a non-geostationary space station shall not exceed the power flux-density levels at the Earth's surface as specified in MOD Article 28 [No. S21.16] for the 6650-7075 MHz band. The aggregate of all emissions from a non-geostationary feeder link constellation shall not exceed the power flux-density limit at the geostationary-satellite orbit as specified in ADD No. 2631A [S22.5A].

Reason: The application of the coordination and notification procedures set forth in MOD Resolution 46 would be necessary for shared, bi-directional use of the 6650-7075 MHz band by non-geostationary mobile-satellite service feeder links. The power flux-density values at the Earth's surface specified in MOD Article 28 [No. S21.16] for the 6650-7075 MHz band would be necessary to protect terrestrial services. The power flux-density limits specified in ADD No. 2631A [S22.5A] would be necessary to protect space stations at the geostationary satellite orbit. [See Document -E for proposals for MOD Article 28 [No. S21.16] and ADD No. 2631A [S22.5A]]

USA/ /14 MOD

GHz
10.7-12.75

Allocation To Services		
Region 1	Region 2	Region 3
10.7-11.7 FIXED FIXED-SATELLITE (space-to-Earth) MOD 792A [S5.441] (Earth-to-space) MOD 835 [S5.484] 792B [S5.441A] MOBILE except aeronautical mobile	10.7 - 11.7 FIXED FIXED-SATELLITE (space-to-Earth) MOD 792A [S5.441] (Earth-to-space) 792B [S5.441A] MOBILE except aeronautical mobile	
792C [S5.441B]	792C [S5.441B]	

Reason: Revisions to the Table in the 10.7-11.7 GHz band are necessary to allocate spectrum specifically for feeder links in the 8 to 16 GHz frequency range to support current and future requirements of mobile-satellite services provided from non-geostationary satellite networks. The CPM-95 indicated that studies have shown that bi-directional spectrum sharing between the geostationary fixed-satellite service and non-geostationary mobile-satellite service feeder link networks is technically feasible given careful site selection and gateway antenna sizing to accommodate systems operating in accordance with Appendix 30B [S30B]. Modification of No. 792A [S5.441] and No. 835 [S5.484] and addition of Nos. 792B [S5.441A] and 792C [S5.441B] is therefore consequential. A potential paired band in the space-to-Earth direction of transmission could be 12.75-13.25 GHz.

USA/ /15 ADD
792B [S5.441A]

Use of the bands 10.7-10.95 GHz and 11.2-11.45 GHz by the fixed-satellite service in the Earth-to-space direction of transmission is limited to feeder links for non-geostationary satellite networks of the mobile-satellite service except as provided by MOD No. 835 [S5.484]. The provisions of No. 2613 [S22.2] do not apply to the fixed-satellite service in these bands in the Earth-to-space direction of transmission.

Reason: The CPM-95 has indicated that bi-directional sharing between non-geostationary mobile-satellite service feeder links in the Earth-to-space direction and geostationary fixed-satellite service networks operating in the space-to-Earth direction in the 10.7-10.95 GHz and 11.2-11.45 GHz bands is technically feasible. Therefore, ADD No. 792B [S5.441A] allocates the 10.7-10.95 GHz and 11.2-11.45 GHz bands, in the Earth-to-space direction of transmission, to the fixed-satellite service and limits the allocation to non-geostationary mobile-satellite service feeder links with the exception of those feeder links for the broadcasting-satellite service operating in accordance with

MOD No. 835 [S5.484]. The CPM-95 has also indicated that procedural revisions would be necessary to provide a regulatory base which would permit the orderly operation of non-geostationary mobile-satellite service feeder links without any regulatory uncertainties to their full operational life. Consequently, the provisions of No. 2613 [S22.2] would not apply in this band for non-geostationary mobile-satellite service feeder links in the Earth-to-space direction of transmission.

USA/ /16 ADD
792C [S5.441B]

The use of the bands 10.7-10.95 GHz and 11.2-11.45 GHz by the fixed-satellite service in the Earth-to-space direction of transmission is subject to the application of the coordination and notification procedures set forth in MOD Resolution 46.

Reason: The application of the coordination and notification procedures set forth in MOD Resolution 46 would be necessary for shared, bi-directional use of the 10.7-10.95 GHz and 11.2-11.45 GHz bands by non-geostationary mobile-satellite service feeder links.

USA/ /17 MOD
835 [S5.484]

In Region 1, the ~~use of the band~~ 10.7-11.7 GHz ~~by~~ band may also be used by the fixed-satellite service (Earth-to-space) ~~is limited to~~ for feeder links for the broadcasting-satellite service.

Reason: MOD No. 835 [S5.484] would allow for continued use of the 10.7-10.95 GHz and 11.2-11.45 GHz bands by the fixed-satellite service for feeder links for the broadcasting-satellite service in Region 1.

GHz
12.75-14.3

USA/ /18 MOD

Allocation To Services		
Region 1	Region 2	Region 3
12.75-13.25 FIXED FIXED-SATELLITE (Earth-to-space) MOD 792A [S5.441] (space-to-Earth) 809C [S5.458C] MOBILE Space Research (deep space) (space-to-Earth) 809D [S5.458D]		

Reason: Revisions to the Table in the 12.75-13.25 GHz band are necessary to allocate spectrum specifically for feeder links in the 8 to 16 GHz frequency range to support current and future requirements of mobile-satellite services provided from non-geostationary satellite networks. The CPM-95 indicated that studies have shown that bi-directional spectrum sharing between the geostationary fixed-satellite service and non-geostationary mobile-satellite service feeder link networks is technically feasible given careful site selection and antenna sizing. Modification of No. 792A [S5.441] and addition of Nos. 809C [S5.458C] and 809D [S5.458D] is therefore consequential. Potentially, the paired bands in the Earth-to-space direction of transmission could be 10.7-10.95 GHz and 11.2-11.45 GHz.

USA/ /19 ADD
809C [S5.458C] Use of the band 12.75-13.25 GHz by the fixed-satellite service in the space-to-Earth direction of transmission is limited to feeder links for non-geostationary satellite networks of the mobile-satellite service. The provisions of No. 2613 [S22.2] do not apply to the fixed-satellite service in this band in the space-to-Earth direction of transmission.

Reason: The CPM-95 has indicated that bi-directional sharing between non-geostationary mobile-satellite service feeder links in the space-to-Earth direction and geostationary fixed-satellite service networks operating in the Earth-to-space direction in the 12.75-13.25 GHz band is technically feasible. Therefore, ADD No. 809C [S5.458C] allocates the 12.75-13.25 GHz band, in the space-to-Earth direction of transmission, to the fixed-satellite service and limits the allocation to non-geostationary mobile-satellite service feeder links. The CPM-95 has also indicated that procedural revisions would be necessary to provide a regulatory base which would permit the orderly operation of non-geostationary mobile-satellite service feeder links without any regulatory uncertainties to their full operational life. Consequently, the provisions of No. 2613 [S22.2] would not apply in this band for non-geostationary mobile-satellite service feeder links in the space-to-Earth direction of transmission.

USA/ /20 ADD
809D [S5.458D] The use of the band 12.75-13.25 GHz by the fixed-satellite service in the space-to-Earth direction of transmission is subject to the application of the

coordination and notification procedures set forth in MOD Resolution **46**. Emissions from a non-geostationary space station shall not exceed the power flux-density levels at the Earth's surface as specified in MOD Article **28** [No. S21.16] for the 12.75-13.25 GHz band. The aggregate of all emissions from a non-geostationary feeder link constellation shall not exceed the power flux-density limit at the geostationary-satellite orbit as specified in ADD No. **2631A** [S22.5A].

Reason: The application of the coordination and notification procedures set forth in MOD Resolution 46 would be necessary for shared, bi-directional use of the 12.75-13.25 GHz band by non-geostationary mobile-satellite service feeder links. The power flux-density values at the Earth's surface specified in MOD Article 28 [No. S21.16] for the 12.75-13.25 GHz band would be necessary to protect terrestrial services. The power flux-density limits specified in ADD No. 2631A [S22.5A] would be necessary to protect space stations at the geostationary satellite orbit. [See Document -E for proposals for MOD Article 28 [No. S21.16] and ADD No. 2631A [S22.5A]] .

USA/ /21 MOD

GHz
15.35-17.7

<table>
<tr><th colspan="3">Allocation To Services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td colspan="3">15.4-~~15.7~~
15.45
AERONAUTICAL RADIONAVIGATION
MOD 733 [S5.367] MOD 797 [S5.445]</td></tr>
<tr><td colspan="3">15.45-15.65
AERONAUTICAL RADIONAVIGATION
FIXED-SATELLITE (Earth-to-space) 797E [S5.447C]
(space-to-Earth) 797G [S5.447E]
~~733 797~~ 797F [S5.447D] 797H [S5.447F] 797I [S5.447G]</td></tr>
<tr><td colspan="3">15.65-15.7
AERONAUTICAL RADIONAVIGATION
MOD 733 [S5.367] MOD 797 [S5.445]</td></tr>
</table>

Reason: Revisions to the Table in the 15.4-15.7 GHz band are necessary to allocate spectrum specifically for feeder links in the 8 to 16 GHz frequency range to support current and immediate requirements of mobile-satellite services provided from non-geostationary satellite networks. The CPM-95 indicated that the feasibility of sharing in this band in either the Earth-to-space or space-to-Earth direction of transmission depends on the nature of use under No. 797 [S5.445]. The CPM-95 did not, however, identify current use of the 15.4-15.7 GHz band by the fixed-satellite and inter-satellite services used in conjunction with the aeronautical radionavigation service and/or with the aeronautical mobile (R) services, in accordance with No. 797 [S5.445], and indicated that no sharing studies were conducted to assess the feasibility of sharing between these services and non-geostationary satellite networks. The CPM-95 also did not identify use of the 15.4-15.7 GHz band by the aeronautical mobile (R) service, in accordance with No. 733 [S5.367]. Modification of Nos. 733 [S5.367] and 797 [S5.445] would therefore be necessary to accommodate non-geostationary mobile-satellite service feeder links in the 15.45-15.65 GHz band. Addition of Nos. 797E [S5.447C], 797F [S5.447D], 797G [S5.447E], 797H [S5.447F] and 797I [S5.447G] is also consequential. As indicated by the CPM-95, a potential paired band in the space-to-Earth direction of transmission could be 6650-7075 GHz and, in the Earth-to-space direction, the 19.4-19.7 GHz band.

USA/ /22 ADD
797E [S5.447C]

Use of the band 15.45-15.65 GHz by the fixed-satellite service in the Earth-to-space direction of transmission is limited to feeder links for non-geostationary satellite systems of the mobile-satellite service. The provisions of No. 2613 [S22.2] do not apply to the fixed-satellite service in the Earth-to-space direction of transmission. For elevation angles equal to or less than 20 degrees, the eirp density over the necessary bandwidth of any emission from an earth station in the fixed-satellite service shall be at least 66.2 dB(W/MHz) for emission bandwidths of less than or equal to 3 MHz. For emission *bandwidths greater than 3 MHz, the eirp shall be 71 dBW. For elevation* angles greater than 20 degrees, the eirp density and eirp values can be reduced respectively by 5 dB. In addition, the average eirp radiated by a station in the radionavigation service shall not exceed 42 dBW. These values shall apply subject to review by the ITU-R and until it is changed by a future competent World Radio Conference.

Reason: The CPM-95 has indicated that bi-directional operation of non-geostationary mobile-satellite service feeder links in the 15.4-15.7 GHz band depends on the nature of use under No. 797 [S5.445]. MOD No. 797 [S5.445] applies to the 15.4-15.45 GHz and 15.65-15.7 GHz segments in the 15.4-15.7 GHz band. ADD No. 797C [S5.447C] therefore allocates the 15.45-15.65 GHz band in this specific direction of transmission to the fixed-satellite service and limits the allocation to non-geostationary mobile-satellite service feeder links. The CPM-95 has also indicated that procedural revisions would be necessary to provide a regulatory base which would permit the orderly operation of non-geostationary mobile-satellite service feeder links without any regulatory uncertainties to their full operational life. Consequently, the provisions of No. 2613 [S22.2] would not apply in this band for non-geostationary mobile-satellite service feeder links in the Earth-to-space or space-to-Earth directions of transmission. The minimum eirp on the earth station transmitter is necessary to prevent interference to the satellite receiver from emissions from aeronautical radionavigation transmissions. The eirp limit on the radionavigation service is necessary to prevent the radionavigation service from interfering with the fixed-satellite receivers.

USA/ /23 ADD
797F [S5.447D]

The use of the band 15.45-15.65 GHz by the fixed-satellite service in the Earth-to-space and space-to-Earth directions of transmission is subject to the application of the coordination and notification procedures set forth in MOD Resolution 46.

Reason: The application of the coordination and notification procedures set forth in MOD Resolution 46 would be necessary for shared use of the 15.45-15.65 GHz band by non-geostationary mobile-satellite service feeder links.

USA/ /24 ADD
797G [S5.447E]

Use of the band 15.45-15.65 GHz by the fixed-satellite service in the space-to-Earth direction of transmission is limited to feeder links for non-geostationary satellite systems of the mobile-satellite service. The provisions of No. 2613 [S22.2] do not apply to the fixed-satellite service in the space-to-Earth direction of transmission.

Reason: The CPM-95 has indicated that co-directional operation of non-geostationary mobile-satellite service feeder links in the 15.4-15.7 GHz band depends on the nature of use under No. 797 [S5.445]. MOD No. 797 [S5.445] applies to the 15.4-15.45 GHz and 15.65-15.7 GHz segments in the 15.4-15.7 GHz band. ADD No. 797G [S5.447E] therefore allocates the 15.45-15.65 GHz band in this specific direction of transmission to the fixed-satellite service and limits the allocation to non-geostationary mobile-satellite service feeder links. The CPM-95 has also indicated that procedural revisions would be necessary to provide a regulatory base which would permit the orderly operation of non-geostationary mobile-satellite service feeder links without any regulatory uncertainties to their full operational life. Consequently, the provisions of No. 2613 [S22.2] would not apply in this band for non-geostationary mobile-satellite service feeder links feeder links in the space-to-Earth or Earth-to-space directions of transmission.

USA/ /25 ADD
797H [S5.447F]

The use of the band 15.45-15.65 GHz by the fixed-satellite service in the space-to-Earth direction of transmission is subject to the application of the coordination and notification procedures set forth in MOD Resolution 46. Non-geostationary satellite networks (space-to-Earth) shall not exceed the power flux-density levels produced at the Earth's surface as specified in MOD Article 28 [No. S21.16]. This value shall apply subject to review by the ITU-R and until it is changed by a future competent World Radio Conference.

Reason: The application of the coordination and notification procedures set forth in MOD Resolution 46 would be necessary for shared use of the 15.45-15.65 GHz band by non-geostationary mobile-satellite service feeder links. The pfd limit at the surface of the Earth will assure that non-geostationary mobile-satellite service feeder link networks will not interfere with aeronautical radionavigation receivers.

USA/ /26 ADD
797I [S5.447G]

In making assignments to space stations of the fixed satellite service in the 15.45-15.65 GHz band, administrations shall take all practicable steps to protect the radio astronomy service operating in the band 15.35-15.4 GHz from harmful interference from unwanted emissions.

Reason: ADD No. 797I [S5.447G] would protect radio astronomy operations in the band 15.35-15.4 GHz.

USA/ /27 MOD

GHz
18.8-22.21

Allocation To Services		
Region 1	Region 2	Region 3
18.8-19.7 FIXED FIXED-SATELLITE (space-to-Earth) 872A [S5.523A] (Earth-to-space) 872C [S5.523C] MOBILE 872B [S5.523B] 872D [S5.523D]		

Reason: Revisions to the Table in the 18.8-19.7 GHz band are necessary to allocate spectrum specifically for feeder links in the 16 to 30 GHz frequency range to support current and immediate requirements of mobile-satellite services provided from non-geostationary satellite networks. The CPM-95 indicated that studies have shown that co-directional spectrum sharing between the geostationary fixed-satellite service and non-geostationary mobile-satellite service feeder link networks is technically feasible. Addition of Nos. 872A [S5.523A] and 872B [S5.523B] is therefore consequential. A potential paired band in the Earth-to-space direction of transmission could be 29.1-29.5 GHz. Revisions to the Table are also necessary to allocate spectrum specifically for feeder links in the 16 to 30 GHz frequency range to support future requirements of mobile-satellite services provided from non-geostationary satellite networks. The CPM-95 also has indicated non-geostationary mobile-satellite service feeder links could share spectrum in a bi-directional mode either with other non-geostationary mobile-satellite service feeder links or alternatively with geostationary fixed-satellite service networks in the 19.4-19.7 GHz band. It noted further that such use should be paired with a frequency band below 17.7 GHz. Addition of Nos. 872C [S5.523C] and 872D [S5.523D] is therefore also consequential.

NOTE: Proposed footnote Nos. 872A, 872B, 872C, and 872D and proposed footnote Nos. 873H and 873I [see Document -E] involve frequencies which overlap. In the event that both of these proposals are adopted by the Conference, final footnotes would need to include a combination of all proposed footnotes in an amended table of allocations.

USA/ /28 ADD
872A [S5.523A] The band 19.3-19.7 GHz may also be used by the fixed-satellite service on a primary basis in the space-to-Earth direction of transmission for feeder links for non-geostationary satellite networks of the mobile-satellite service. The provisions of No. 2613 [S22.2] do not apply to this fixed-satellite allocation in the space-to-Earth direction of transmission.

Reason: The CPM-95 has indicated that co-directional sharing between non-geostationary mobile-satellite service feeder links in the space-to-Earth direction and geostationary fixed-satellite service networks operating in the space-to-Earth direction in the 19.3-19.7 GHz band is technically feasible. Therefore, ADD No. 872A [S5.523A] allocates the band 19.3-19.7 GHz for use by the fixed-satellite service for feeder links for the non-geostationary mobile-satellite service in the space-to-Earth direction of transmission. The CPM-95 has also indicated that procedural revisions would be necessary to provide a regulatory base which would permit the orderly operation of non-geostationary mobile-satellite service feeder links without any regulatory uncertainties to their full operational life. Consequently, the provisions of No. 2613 [S22.2] would not apply in this band for non-geostationary mobile-satellite service feeder links in the space-to-Earth or Earth-to-space directions of transmission.

USA/ /29 ADD
872B [S5.523B] The use of the band 19.3-19.7 GHz by the fixed-satellite service in the space-to-Earth direction of transmission is subject to the application of the coordination and notification procedures set forth in MOD Resolution **46**. Emissions from a non-geostationary space station shall not exceed the power flux-density levels at the Earth's surface as specified in MOD Article **28** [No. S21.16].

Reason: The application of the coordination and notification procedures set forth in MOD Resolution 46 would be necessary for shared, bi-directional use of the 19.3-19.7 GHz band by non-geostationary mobile-satellite service feeder links. The power flux-density values at the Earth's surface specified in MOD Article 28 [No. S21.16] would be necessary to protect terrestrial services.

USA/ /30 ADD
872C [S5.523C] Use of the band 19.4-19.7 GHz by the fixed-satellite service in the Earth-to-space direction of transmission is limited to feeder links for non-geostationary satellite networks of the mobile-satellite service. The provisions of No. 2613 [S22.2] do not apply to the fixed-satellite service in the Earth-to-space direction of transmission.

Reason: The CPM-95 has indicated non-geostationary mobile-satellite service feeder links could share spectrum in a bi-directional mode either with other non-geostationary mobile-satellite service feeder links or alternatively with geostationary fixed-satellite service networks in the 19.4-19.7 GHz band. Therefore, ADD No. 872C [S5.523C] allocates the 19.4-19.7 GHz band, in the Earth-to-space direction of transmission, to the fixed-satellite service and limits the allocation to non-geostationary mobile-satellite service feeder links. The CPM-95 has also indicated that procedural revisions would be necessary to provide a regulatory base which would permit the orderly operation of non-geostationary mobile-satellite service feeder links without any regulatory uncertainties to their full operational life. Consequently, No. 2613 [S22.2] would not apply in this band for non-geostationary mobile-satellite service feeder links in the Earth-to-space or space-to-Earth directions of transmission.

USA/ /31 ADD
872D [S5.523D] The use of the band 19.4-19.7 GHz by the fixed-satellite service in the Earth-to-space direction of transmission is subject to the application of the coordination and notification procedures set forth in MOD Resolution **46**.

Reason: The application of the coordination and notification procedures set forth in MOD Resolution 46 would be necessary for shared, bi-directional use of the 19.4-19.7 GHz band by non-geostationary mobile-satellite service feeder links.

GHz
25.5-29.9

USA/ /32 MOD

<table>
<tr><th colspan="3">Allocation To Services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td colspan="3">28.5 - 29.5 FIXED
FIXED-SATELLITE (Earth-to-space) 882D [S5.539] 882H [S5.542A]
MOBILE
Earth Exploration-Satellite (Earth-to-space) 882C [S5.538]
882B [S5.537] 882I [S5.542B]</td></tr>
</table>

Reason: Revisions to the Table in the 28.5-29.5 GHz band are necessary to allocate spectrum specifically for feeder links in the 16 to 30 GHz frequency range to support current and immediate requirements of mobile-satellite services provided from non-geostationary satellite networks. The CPM-95 indicated that studies have shown that co-directional spectrum sharing between the geostationary fixed-satellite service and non-geostationary mobile-satellite service feeder link networks is technically feasible. Addition of Nos. 882H [S5.542A] and 882I [S5.542B] is therefore consequential. A potential paired band in the space-to-Earth direction of transmission could be 19.3-19.7 GHz.

NOTE: Proposed footnote Nos. 882H, and 882I and proposed footnote Nos. 873H and 873I [see Document -E] involve frequencies which overlap. In the event that both of these proposals are adopted by the Conference, final footnotes would need to include a combination of all proposed footnotes in an amended table of allocations.

USA/ /33 ADD
882H [S5.542A] The band 29.1-29.5 GHz may also be used by the fixed-satellite service on a primary basis in the Earth-to-space direction of transmission for feeder links for non-geostationary satellite networks of the mobile-satellite service. The provisions of No. 2613 [S22.2] do not apply to the fixed-satellite service in the Earth-to-space direction of transmission.

Reason: The CPM-95 has indicated that co-directional sharing between non-geostationary mobile-satellite service feeder links and geostationary fixed-satellite service networks in the 27.5-29.5 GHz band is technically feasible. Therefore, ADD No. 882H [S5.542A] allocates the band 29.1-29.5 GHz for use by the fixed-satellite service for feeder links for the non-geostationary mobile-satellite service in the Earth-to-space direction of transmission. The CPM-95 has also indicated that procedural revisions would be necessary to provide a regulatory base which would permit the orderly operation of non-geostationary mobile-satellite service feeder links without any regulatory uncertainties to their full operational life. Consequently, the provisions of No. 2613 [S22.2] would not apply in this band for non-geostationary mobile-satellite service feeder links in the Earth-to-space direction of transmission.

USA/ /34 ADD
882I [S5.542B]

The use of the band 29.1-29.5 GHz by the fixed-satellite service in the Earth-to-space direction of transmission is subject to the application of the coordination and notification procedures set forth in MOD Resolution **46**.

Reason: The application of the coordination and notification procedures set forth in MOD Resolution 46 would be necessary for shared, co-directional use of the 29.1-29.5 GHz band by non-geostationary mobile-satellite service feeder links.

Document -E
14 June 1995
Original: English

United States of America

Proposals for Agenda Items 2.1c and 3d

REGULATORY ASPECTS FOR FEEDER LINKS FOR THE MOBILE-SATELLITE SERVICES

Introduction:

The WARC-92 allocated spectrum in the 1.6/2.4 GHz frequency bands for mobile-satellite services. The United States has since licensed three non-geostationary mobile-satellite systems to operate in these frequency bands. Two additional U.S. non-geostationary mobile-satellite systems may also be licensed after January 1996. The first U.S. 1.6/2.4 GHz non-geostationary mobile-satellite launch is expected to occur prior to the WRC-97.

In addition to the 1.6/2.4 GHz service link allocations for these mobile-satellite networks, allocations for feeder link operations are necessary. Feeder link networks are needed to complete the service link transmission paths, process the information being transmitted, and interconnect the system with other radiocommunication networks or with other mobile earth stations. Though feeder link earth stations for non-geostationary mobile-satellite systems would operate at fixed locations, and they would operate in frequency bands allocated to the fixed-satellite service according to No. 22, WRC-95 must allocate specific frequency bands for non-geostationary mobile-satellite service feeder link networks to operate on a co-primary basis with other radiocommunication networks. The procedural aspects associated with feeder link allocations for the non-geostationary mobile-satellite service must also be considered by the WRC-95.

In preparation for the WRC-95, the CPM-95 has identified various procedural revisions that would be necessary for non-geostationary mobile-satellite service feeder link networks to share certain frequency bands in the 4 to 8 GHz, 8 to 16 GHz, and 16 to 30 GHz frequency ranges with current and future users of those frequency bands. The United States proposals to modify Articles 28 [S21] and 29 [S22] of the simplified international Radio Regulations, contained herein, are to support immediate and actual needs of the mobile-satellite service and are based on the output from the CPM-95 and the recommendation by the VGE to simplify the Radio Regulations.

USA/ /1 MOD
Article 28 [S21.16]

§ 6 The power flux-density limits at the Earth's surface produced by emissions from a space station, including emissions from a reflecting satellite, for all conditions and all methods of modulation, shall not exceed that limit given in Table [AR28] below. The limit relates to the power-flux density which would be obtained under assumed free-space propagation conditions and applies to transmission by space stations of the service indicated where the frequency bands are shared with equal rights with the fixed or mobile service unless otherwise stated.

Frequency Band	Service	Limit in dB(W/m^2) for angle of arrival above the horizontal plane			Reference Bandwidth
		0°-5°	5°-25°	25°-90°	
6650-7075 MHz	Fixed-satellite (for non-geostationary mobile-satellite feeder links)	-158 -134	$-158 + 0.5(\delta-5)$ $-134 + 0.5(\delta-5)$	-148 -124	4kHz. 1MHz
12.75-13.25 GHz	Fixed-satellite (for non-geostationary mobile-satellite feeder links)	-150 -126	$-150 + 0.5(\delta-5)$ $-126 + 0.5(\delta-5)$	-140 -116	4kHz 1MHz
15.45-15.65 GHz	Fixed-satellite (for non-geostationary mobile-satellite feeder links)	-111	-111	-111	1MHz

Reason: **MOD Article 28 [No. S21.16] of the simplified Radio Regulations regarding the power flux-density limits for the frequency bands 6650-7075 MHz, 12.75-13.25 GHz, and 15.45-15.65 GHzwould be necessary for shared use of the band by non-geostationary mobile-satellite service feeder links.**

USA/ /2 ADD
2631A [S22.5A]

§ 5 In the frequency bands 6650-7075 MHz (space-to-Earth) and 12.75-13.25 GHz (space-to-Earth), where feeder link networks of the mobile-satellite service share with geostationary fixed-satellite networks operating in the Earth-to-space direction of transmission, the maximum power flux-density produced at the geostationary-satellite orbit by the aggregation of all emissions from a non-geostationary mobile-satellite service feeder link satellite constellation shall not exceed -168 dB(W/m^2) in any 4 kHz band. These values apply within +/-5° of the geostationary-satellite orbit.

REASON:

ADD No. 2631A [S22.5A] would provide protection to the geostationary satellite orbit from emissions from non-geostationary satellite networks providing mobile-satellite service feeder links.

USA/ /3 ADD

RESOLUTION No. XXX (WRC-95)

Sharing Studies Concerning the Use of the Bands 5090-5150 MHz and 5150-5250 MHz for Feeder Links of the Non-Geostationary Mobile-Satellite Service (Earth-to-space)

The World Radiocommunication Conference for Dealing with
Frequency Allocations in Certain Parts of the Spectrum
(Geneva, 1995),

considering

a) that agenda item 3(d) of this Conference requested the consideration, inter alia, of an allocation of frequency bands for feeder links for the mobile-satellite service;

b) that the band 5000-5250 MHz is allocated to the aeronautical radionavigation service in all three ITU Regions;

c) that Annex 10 to the Chicago Convention (April 1985) only contains a requirement for MLS operations in accordance with the channelization plan in 5031-5090.7 MHz; and

d) that there is a need to determine the operational and technical means to facilitate sharing between feeder links for the mobile-satellite service (Earth-to-space) and the services mentioned in b), above, in the bands 5090-5150 MHz and 5150-5250 MHz;

resolves

1. that studies be undertaken by the ITU-R to develop the operational and technical measures that would facilitate sharing between feeder links for the mobile-satellite service (Earth-to-space) and the services mentioned in considerings d); and

2. that the International Civil Aviation Organization (ICAO) be invited to participate in these sharing studies;

invites

1. the ITU-R to continue to study, as a matter of urgency, the technical and operational issues relating to the sharing of the bands between the services mentioned in d), above, and the feeder links for the mobile-satellite service in the Earth-to-space direction; and

2. administrations to participate actively in such studies by sending contributions to the ITU-R relating to the aforementioned studies;

instructs the Director of the ITU-R

to bring the results of these studies to the attention of the next competent World Radiocommunication Conference and

instructs the Secretary-General

to bring this Resolution to the notice of ICAO.

Section D

RECOMMENDED UNITED STATES PROPOSALS

Agenda Items 2.1 & 3d)

Regulatory/Procedural Constraints on MSS Below 3 GHz and MSS Feeder Links

Document WRC95/ -E
14 June 1995
Original: English

United States of America

Proposals for Agenda Item 1

MOD RESOLUTION 46

General:

CPM95 expressed the view that coordination pursuant to Resolution 46 should be extended to feeder links in bands identified by WRC95 for feeder links to non-geostationary space stations of the mobile satellite service. It also offered suggestions that would reduce the amount of such coordination vis-a-vis the fixed service where conditions that it identified are met. And finally, CPM95 offered examples of regulatory text.

This administration is in general agreement with the assumptions CPM95 has offered. We believe that coordination under Resolution 46 is not required in certain cases involving the fixed service, and we believe that MSS feeder links in bands designated by this conference should fall under Resolution 46. We offer a modified Resolution 46 (MOD Res 46) to accomplish these aims and to effect certain other improvements.

As with its predecessor, MOD Res 46 should come into force on the day this conference rises.

MOD RESOLUTION No. 46

Interim Procedures for the Coordination and Notification of Frequency Assignments of Non-Geostationary Satellite Networks in Certain Space Services and the Other Services to Which ~~the~~ Certain Bands are Allocated

The World ~~Administrative~~ Radiocommunication Conference (Geneva, ~~1992~~ 1995),

considering

a) that in several different space radiocommunication services there is increasing interest in the use of space systems using non-geostationary-satellite networks;

b) that, in order to ensure the satisfactory operation of such networks, other networks and other radio services sharing the same frequency bands, taking into account the relevant allocations, there is a need for procedures to regulate the frequency assignments of non-geostationary-satellite networks;

USA/ /1 SUP ~~c) that the coordination methods for non-geostationary satellite networks require specific criteria and calculation methods which are not yet available;~~

Reason: ITU-R work since WARC-92 has evolved criteria and methodology in some cases.

USA/ /2 MOD ~~d~~c) that, consequently, there is a need for interim procedures to be applied until such time as the coming into force of a suitable ~~a future conference, with the benefit of further studies by the CCIR and taking account of the experience gained in practice, is able to adopt a~~ permanent procedure such as that set forth in Chapter SIII of the simplified draft of the Radio Regulations.

Reason: To recognise ITU-R progress on point to date.

USA/ /3 ADD d) that there is a need as well for these interim procedures to be applied in certain bands made available by the present conference for the purpose of providing feeder links to space stations in non-geostationary-satellite networks of the mobile-satellite service;

Reason: To extend applicability to feeder links.

USA/ /4 ADD e) that preparatory work by the ITU-R demonstrates that the amount of coordination between stations of a non-geostationary satellite network on the one hand and the fixed service on the other can, in certain cases, be reduced below that envisaged in Resolution 46 (WARC-92) while precluding harmful interference being caused to either the space service or the fixed service;

Reason: To simplify by eliminating unnecessary coordination.

considering also

USA/ /5 SUP ~~e) that the Plenipotentiary Conference (Nice, 1989), initiated the formation of a Voluntary Group of Experts, one of whose tasks is to simplify the procedures of the Radio Regulations.~~

~~f) that any new procedures adopted by this Conference must therefore be as simple as possible and should, wherever appropriate, make use of the existing procedures of the Radio Regulations.~~

Reason: Overtaken by events.

USA/ /6 (MOD)

~~g~~e) that any interim procedures must take full account of the status of the allocations to services, both terrestrial and space, in frequency bands which may be used by non-geostationary-satellite networks;

Reason: Consequential to USA/ /5.

USA/ /7 (MOD)

~~h~~f) that any interim procedures must also take full account of the interests of all countries, including the state of development of their terrestrial and space radiocommunication services.

Reason: Consequential to USA/ /5.

USA/ /8 SUP ~~*considering further*~~

~~i) that the provisions of No. 2613 of the Radio Regulations, while necessary to safeguard geostationary satellite networks in the fixed-satellite service from interference which might be caused by non-geostationary satellite networks, would, if more widely applied, prejudice the development of such systems in other space radiocommunication services,~~

Reason: Footnotes to the Table of Frequency Allocations have been proposed which treat this matter.

recognising

USA/ /9 MOD that the operation of telecommunication systems in ~~the MSS~~ those bands allocated to the mobile-satellite service as well as bands allocated to the fixed-satellite service and used for feeder links of non-geostationary satellite networks of the mobile-satellite service must be in conformity with the International Telecommunication Constitution and Convention and the Administrative Regulations in force, in particular their respective preambles and, in this respect:

a) the right of each Member to decide how or whether to participate in the above systems, and to determine the terms and conditions of access to such systems from its territory;

b) the obligation for entities and organisations providing international or national telecommunications services by non-geostationary-satellite networks to operate at the point of delivery under the legal, financial and regulatory requirements of the Member of the Union in whose territory these services are authorised;

Reason: To broaden the applicability to relevant bands addressed by this conference.

resolves

USA/ /10 MOD 1. that, pending the adoption of a permanent procedure such as that set forth in Chapter SIII of the simplified draft of the Radio Regulations by a future competent conference, the use of frequency assignments by:

Reason: To signify the general acceptability of the VGE approach.

a) non-geostationary-satellite systems in the space services in relation to other non-geostationary-satellite systems, geostationary-satellite systems and terrestrial systems;

USA/ /11 ADD b) feeder links supporting non-geostationary-satellite systems in the mobile-satellite service in relation to other non-geostationary-satellite systems, geostationary-satellite systems and terrestrial systems;

Reason: To extend applicability to feeder links.

USA/ /12 MOD ~~b~~c) geostationary-satellite systems in relation to non-geostationary-satellite systems including feeder links supporting non-geostationary-satellite systems in the mobile-satellite service; and,

Reason: To extend applicability to feeder links.

USA/ /13 MOD ~~c~~d) terrestrial systems in relation to the earth stations and space stations of non-geostationary-satellite networks to which this Resolution applies shall be regulated in accordance with the interim procedures and the associated provisions in the annex hereto;

Reason: Consequential.

USA/ /14 MOD 2. That the interim procedures annexed to this Resolution apply in addition to those of Articles 11 and 13 for geostationary-satellite networks and shall replace those of Articles 11 and 13 for non-geostationary-satellite networks for the mobile-satellite service and the fixed-satellite service in those frequency bands specifically identified by footnote to Article 8, the Table of Frequency Allocations;

Reason: To specify the applicability.

USA/ /15 MOD 3. that the interim procedures annexed to this Resolution shall be applied from ~~4 March 1993~~ [ ] November 1995.

Reason: To update Resolution 46.

Annex 1
to
MOD RESOLUTION No. 46

USA/ /16 MOD

Interim Procedures for the Coordination and Notification of Frequency Assignments of Non-Geostationary Satellite Networks in Certain Space Services and the Other Services to Which ~~the~~ Certain Bands are Allocated[1]

Reason: To specify the applicability.

Section A. General Information

USA/ /17 MOD A.1 The assistance of the ~~IFRB~~ BR can be requested in the application of the provisions of this annex. The following provisions shall apply: RR 1054 to 1054C under Section I, RR 1088 to 1103 under Section II, RR 1130 to 1144 under Section III in relation to terrestrial stations and earth stations operated in the opposite direction of transmission, and RR 1168 to 1181 under Section IV.

Reason: To assist administrations.

USA/ /18 (MOD) A.2 In the absence of specific provisions relating to the evaluation of the interference, the calculation methods and the criteria should be based on relevant ~~CCIR~~ ITU-R Recommendations agreed by the administrations concerned either as a result of Resolution 703 (Rev. WARC-92) or otherwise. In the event of disagreement on a ~~CCIR~~ ITU-R Recommendation or in the absence of such Recommendation, the methods and criteria shall be agreed between the administrations concerned. Such agreements shall be concluded without prejudice to other administrations.

Reason: Consequential to the APP, Geneva, 1992.

USA/ /19 MOD A.3 When applying the provisions of this Resolution for non-geostationary satellite networks, administrations ~~should~~ shall provide the following information in addition to that of Appendix 3 or Appendix 4.

~~i) right ascension of the ascending node;~~

~~ii) argument of the perigee;~~

~~iii) active service arc.~~

1) Orientation of the satellite transmitting and

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[1] Section I, II and III apply to terrestrial services only in the case where a power flux-density threshold at the surface of the Earth (for a space station) or at the border of the territory of another administration (for an earth station) specified in a provision of the Radio Regulations is exceeded.

receiving antenna beams and their radiation pattern.

2) Type of modulation and multiple access.

3) Appropriate information required to calculate the affected region due to the MSS space stations. (As defined in draft new Recommendation ITU-R M.[Document 8/45].)

4) Maximum and average beam peak e.i.r.p./4 kHz and e.i.r.p./1 MHz for each beam where averaging is conducted across a stated time interval.

5) The satellite antenna gain G(e) as a function of elevation angle at a fixed point on the Earth. (To be provided either as part of Appendix 3 or as a formula to convert existing Appendix 3 data.)

6) The spreading loss (for a non-GSO space station) as a function of elevation angle. (To be determined by equations or provided in graphical form.)

7) New data elements required to properly characterise non-GSO satellites:

Np = number of orbital planes;

Ns = number of satellites in each orbital plane;

i = right ascension of the ascending node for the i-th orbital plane, measured counter clockwise in the equatorial plane from the direction of the vernal equinox to the point where the satellite makes its south-to-north crossing of the equator (0:: i < 360::);

USA/ /20 (MOD) ii = inclination angle for the i-th orbital plane with respect to the reference plane, which is taken to be the ~~Earth's~~ equatorial plane of the Earth (0:: ii < 180::);

Reason: To improve by aligning CPM95's output on existing usage.

i = initial phase angle of the i-th satellite in its orbital plane at reference time t = 0, measured from the point of ascending node (0:: i < 360::);

a = semi-major axis;

e = eccentricity (for circular orbit, e =0);

p = argument of perigee, measured in the orbital plane, in the direction of motion, from the ascending node to perigee (0⁙ p < 360⁙).

Reason: To specify useful technical information.

Section I. Procedure for the Advance Publication of Information on Planned Satellite Networks

Publication of information

USA/ /21 (MOD) 1.1 An administration (or one acting on behalf of a group of named administrations) which intends to bring into use a satellite network within a satellite system shall, prior to the coordination procedure described in paragraphs 2.1 and 2.2, send to the ~~International Frequency Registration Board~~ Radiocommunication Bureau, not earlier than six years[2] and preferably not later than two years, before the date of bringing into service of each satellite network, the information listed in Appendix 4.

Reason: Consequential to the APP, Geneva, 1992.

USA/ /22 (MOD) 1.2 Amendments to the information sent in accordance with the provisions of paragraph 1.1 shall also be sent to the ~~Board~~ Bureau as soon as they become available. Modifications which are of such a nature as to change significantly the character of the network may require recommencing the advance publication procedure.

Reason: See USA/ /21.

USA/ /23 (MOD) 1.3 On receipt of the complete information sent under paragraphs 1.1 and 1.2, the ~~Board~~ Bureau shall publish it in a special section of its weekly circular within three months and shall also, when the weekly circular contains such information, so advise all administrations by circular telegram. The circular telegram shall indicate the frequency bands to be used and, in the case of a geostationary satellite, the orbital location of the space station. When the ~~Board~~ Bureau is not in a position to comply with the time limit referred to above, it shall periodically so inform the administrations, giving the reasons therefor.

Reason: See USA/ /21.

Comments on Published Information

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[2] See also No 1550.

USA/ /24 (MOD) 1.4 If, after studying the information published under paragraph 1.3, any administration is of the opinion that interference which may be unacceptable may be caused to assignments of its existing or planned satellite networks or to assignments to its existing or planned terrestrial radiocommunication stations, it shall, within four months after the date of the weekly circular containing the complete information listed in Appendix 4, send the administration concerned its comments on the particulars of the interference to its existing or planned satellite systems or to its existing or planned terrestrial stations. A copy of these comments shall also be sent to the ~~Board~~. Bureau. If no such comments are received from an administration within the period mentioned above, it may be assumed that the administration has no basic objections to the planned satellite network(s) of the system on which details have been published.

Reason: See USA/ /21.

1.4A An administration sending information under paragraphs 1.1 and 1.2 shall, if requested by an administration receiving information published under paragraph 1.3, provide the technical methods and criteria it proposes to use for the evaluation of the interference.

1.4B An administration receiving information published under paragraph 1.3, may provide to the administration sending information under paragraphs 1.1 and 1.2 the technical methods and criteria it proposes to use for the evaluation of the interference.

Resolution of Difficulties

1.5 An administration receiving comments sent in accordance with paragraph 1.4 and administrations sending such comments shall endeavour to resolve any difficulties that may arise and shall provide any additional information that may be available.

1.5A In case of difficulties arising, the administration responsible for the planned network shall first explore all possible means of meeting its requirements without considering the possibility of adjustment to stations or networks of other administrations. If no such means can be found, the administration concerned may then request other administrations, either bilaterally or multilaterally, to mutually help resolve these difficulties.

1.5B An administration receiving a request under paragraph 1.5A shall, in consultation with the requesting administration, explore all possible means of meeting the latter's requirements.

1.5C If, after following the procedure described in paragraphs 1.5A and 1.5B, there are unresolved difficulties, the administrations concerned shall jointly make every possible effort to resolve these difficulties by means of mutually acceptable adjustments.

Results of Advance Publication

USA/ /25 (MOD) 1.6 An administration on behalf of which details of planned satellite networks have been published in accordance with the provisions of paragraphs 1.1 to 1.3 shall, after the period of four months specified in paragraph 1.4, inform the ~~Board~~ Bureau whether or not comments provided for in paragraph 1.4 have been received and of the progress made in resolving any difficulties. Additional information on the progress made in resolving any remaining difficulties shall be sent to the ~~Board~~ Bureau at intervals not exceeding six months prior to the commencement of coordination or the sending of the notices to the ~~Board~~ Bureau. The ~~Board~~ Bureau shall publish this information in the special section of its weekly circular.

Reason: See USA/ /21.

1.7 When, upon expiry of a period of six years plus the extension provided for in No. 1550 after the date of the publication of the special section referred to in paragraph 1.3, the administration responsible for the network has not submitted the Appendix 3 information for coordination under paragraph 2.1 or paragraph 2.2 or notification under No. 1488, as appropriate, the information published under paragraph 1.3 shall be canceled after the administration concerned has been informed.

Commencement of Coordination or Notification Procedures

USA/ /26 (MOD) 1.8 When communicating to the ~~Board~~ Bureau the information referred to in paragraph 1.1, an administration may, at the same time or at a later time, communicate:

Reason: See USA/ /21.

1.8A the information required for the network coordination of a frequency assignment to a station of a satellite network in accordance with the provisions of paragraph 2.6, or

1.8B the information required for notification of a frequency assignment to a station of a satellite network when coordination for that assignment is not required.

USA/ /27 (MOD) 1.8C Such coordination or notification information, as the case may be, shall be considered as having been received by the ~~Board~~ Bureau not earlier than six months after the date of receipt of the information referred to in paragraph 1.1.

Reason: See USA/ /21.

Section II. Coordination of Frequency Assignments to a Station of a Satellite Network

Requirement for Coordination

USA/ /28 (MOD) 2.1 Before an administration (or one acting on behalf of one or more named administrations) notifies to the ~~Board~~ Bureau or brings into use any frequency assignment to a station of a non-geostationary-satellite network, it shall effect coordination of the assignment with any other administration whose assignment to a station in a geostationary-satellite network, or whose assignment to a station of a non-geostationary-satellite network or whose assignment to a terrestrial station might be affected.

Reason: See USA/ /21.

USA/ /29 (MOD) 2.2 Before an administration (or one acting on behalf of one or more named administrations) notifies to the ~~Board~~ Bureau or brings into use any frequency assignment to a station of a geostationary-satellite network, it shall effect coordination of the assignment with any other administration whose assignment to a station of a non-geostationary-satellite network might be affected.

Reason: See USA/ /21.

2.3 Coordination under paragraphs 2.1 and 2.2 may be effected for a satellite network using the information relating to the space station, including its service area, and the parameters of one or more typical earth stations which may be located in all or part of the space station service area.

USA/ /30 (MOD) 2.4 If a frequency assignment is brought into use before the commencement of the coordination procedure of paragraphs 2.1 or 2.2, when this coordination is required, the operation in advance of the receipt by the ~~Board~~ Bureau of the Appendix 3 information shall in no way afford any priority of the date.

Reason: See USA/ /21.

2.5 Frequency assignments to be taken into account in the application of paragraphs 2.1 and 2.2 are those with a frequency overlap with the planned assignment, pertaining to the same service or to another service to which the band is allocated with equal rights, or a higher category of allocation (see Nos. 420 to 425 and 435), and which:

for space services, are:

2.5.1 in conformity with No. 1503, and

2.5.2 either recorded in the Master Register, or coordinated under the provisions of this Section or of Section II of Article 11, or

USA/ /31 (MOD)

2.5.3 included in the coordination procedure with effect from the date of receipt by the ~~Board~~ Bureau, in accordance with paragraph 2.6 or No. 1074 or 1074A of Article 11, of the relevant information as specified in Appendix 3;

Reason: See USA/ /21.

or, for terrestrial services, are:

2.5.4 recorded in the Master Register with a favourable finding with respect to No. 1240, or

2.5.5 not notified but in use or planned to be brought into use within the next three years.

USA/ /32 ADD

2.5bis Coordination of space services (Earth-to-space) with the Fixed Service of an administration [in the bands [...]] [in those bands having a Table of Frequency Allocations footnote referencing this Resolution] is not required if:

a) the frequency assignments referred to in 2.5.4 and 2.5.5 use analogue modulation and the power flux-density radiated over the territory of this administration into these frequency assignments does not exceed the threshold specified in [ ], or

b) the frequency assignments referred to in 2.5.4 and 2.5.5 use digital modulation and the fractional degradation of performance caused into reference digital fixed service frequency assignments located in the territory of this administration does not exceed the threshold specified in [ ], or

c) the application of the simulation method described in [ ] to fixed service frequency assignments located within the territory of this administration, leads to an interference level which does not exceed the threshold specified in [ ].

Reason: To eliminate unnecessary coordination with the Fixed Service.

USA/ /33 ADD

2.5ter No coordination under 2.1 or 2.2 is required:

a) when an administration proposes to notify or bring into use, within the service area of a satellite network, a typical earth station or an earth station which would not cause or suffer interference of a level greater than the typical earth station; or

b) when the interference resulting from a modification to a frequency assignment which has previously been coordinated will not exceed that value agreed during coordination; or

c) when an administration proposes to notify or bring into use a new earth station which would not cause or suffer interference of a level greater than that which would be caused by an earth station belonging to the same satellite network and whose characteristics have been published in accordance with 2.7.2, or notified to the Bureau without coordination in those cases where coordination was not required; or

d) when, for a new frequency assignment to a receiving station, the notifying administration states that it accepts the interference resulting from the frequency assignments referred to in 2.5.1 to 2.5.3; or

e) between earth stations using frequency assignments in the same direction (either Earth-to-space or space-to-Earth).

Reason: To extend to non-geostationary-satellite networks exemptions from coordination, or re-coordination as the case may be, each of which currently appears in the Radio Regulations in respect to geostationary-satellite networks.

Coordination Data

USA/ /34 (MOD) 2.6 The administration seeking coordination shall send to the ~~Board~~ Bureau the information listed in Appendix 3.

Reason: See USA/ /21.

USA/ /35 (MOD) 2.7 On receipt of the complete information referred to in paragraph 2.6, the ~~Board~~ Bureau shall:

Reason: See USA/ /21.

2.7.1 examine this information with respect to its conformity with No. 1503; the date of its receipt shall be considered as the date from which the assignment will be taken into account for coordination;

USA/ /36 MOD 2.7.2 publish in the special section of its weekly circular, within three months, the information received under paragraph 2.6 and the result of the examination under paragraph 2.7.1[3]. When the ~~Board~~ Bureau is not in a position to comply with the time limit referred to above, it shall periodically so inform the administrations giving the reasons therefor.

Reason: To make clear to the BR, and to other administrations, which administrations' names are to comprise the list depicted in the footnote.

Examination of Coordination Data and Agreement Between Administrations

USA/ /37 (MOD) 2.8 On receipt of the special section referred to in paragraph 2.7.2, an administration shall promptly examine the matter with regard to interference which would be caused to the frequency assignments of its network or terrestrial stations, or caused by these assignments. In so doing, it shall have regard to the proposed date of bringing into use of the assignment for which coordination is sought. It shall then, within six months from the date of the relevant weekly circular, notify the administration seeking coordination of its agreement. If, however, the administration with which coordination is sought does not agree, it shall, within the same period, send to the administration seeking coordination the technical details of the networks or information on the terrestrial stations concerned upon which its disagreement is based, including the characteristics contained in Section C of Appendix 1 or Appendix 3 which have not previously been notified to the ~~Board~~ Bureau, and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem. A copy of these comments shall also be sent to the ~~Board~~ Bureau.

Reason: See USA/ /21.

2.8A Affected administrations, as well as the administration seeking coordination, shall make all possible mutual efforts to overcome the difficulties in a manner acceptable to the parties concerned.

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[3] To help administrations identify services that may be affected, the ~~Board~~ Bureau shall also publish a list of administrations whose assignments comply with paragraphs 2.5 and 2.5.1 to 2.5.3 or paragraphs 2.5 and 2.5.4, and yet do not ~~comply with~~ meet any exception in paragraphs 2.5bis a), 2.5bis b) or 2.5bis c).

Reason: Correction of CPM95 text. As drafted, the added phrase in effect contains a double negative; assignments *complying with* any of the three added paragraphs cause their respective administrations' names *not* to appear in the list.

USA/ /38 ADD 2.8B When an administration has not responded to the Bureau within the period of six months referred to in paragraph 2.8, it shall be deemed that this administration has undertaken:

a) that no complaint will be made in respect of any harmful interference affecting the services rendered by its space radiocommunication or terrestrial stations which may be caused by the use of the assignment to a station of the satellite network for which coordination was requested; **and**

b) that its space radiocommunication or terrestrial stations will not cause harmful interference to the satellite network assignment for which coordination was requested.

Reason: To identify the rights at risk through non-response.

Results of Coordination

USA/ /39 (MOD) 2.9 An administration which has initiated a coordination procedure under the provisions of paragraphs 2.1 to 2.6 shall communicate to the ~~Board~~ Bureau the names of the administrations with which agreement has been reached. The ~~Board~~ Bureau shall publish this information in the special section of its weekly circular.

Reason: See USA/ /21.

USA/ /40 (MOD) 2.10 An administration which has sought coordination, as well as any administration which has complied with the provisions of paragraph 2.8, shall communicate to the ~~Board~~ Bureau any modifications to the published characteristics of their respective networks or stations that were required to reach agreement on the coordination. The ~~Board~~ Bureau shall publish this information in accordance with paragraph 2.7.2, indicating that these modifications resulted from the joint efforts of the administrations concerned to reach agreement on the coordination.

Reason: See USA/ /21.

Notification of Frequency Assignments in the Event of Continuing Disagreement

USA/ /41 (MOD) 2.11 In the event of continuing disagreement between an administration seeking to effect coordination and any administration with which coordination has been sought, the administration seeking coordination shall, except in the cases where the assistance of the ~~Board~~ Bureau has been requested, defer the submission of its notice concerning the proposed assignment by eight months from the date of publication of the special section referred to in paragraph 2.7.2, taking into account the provisions of No. 1496. When the assistance of the ~~Board~~ Bureau has been requested, the submission of the notice shall be deferred for a further three months.

Reason: See USA/ /21.

USA/ /42 MOD

Section III. Coordination of Frequency Assignments to Earth Stations of a Non-Geostationary-Satellite Network in Relation to Terrestrial Stations and of a Satellite Network in Relation to other Earth Stations in the Opposite Direction of Transmission[4]

Reason: To provide a coordination procedure to accommodate bi-directional operations for MSS feeder links.

Requirement for Coordination

USA/ /43 (MOD) 3.1 Before an administration notifies to the ~~Board~~ Bureau or brings into use any frequency assignment to a fixed earth station or to typical earth stations in a particular band allocated with equal rights to space and terrestrial radiocommunication services, it shall effect coordination of the assignment with each administration whose territory lies wholly or partly within the coordination area[5]. The request for coordination may specify all or some of the frequency assignments to the associated space station, but thereafter each assignment shall be dealt with individually.

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[4] Section III does not apply to the coordination of an Earth-to-space assignment of a satellite network vis-*a*-vis terrestrial services in the case where a pfd threshold at the border of the territory of another administration, specified in a provision of the Radio Regulations, is not exceeded.

[5] The coordination area is defined as the service area in which it is intended to operate the typical earth stations, extended in all directions by a coordination distance of 500 km, or as a circular zone with a radius of 500 km centered on the coordinates of the fixed earth station. For a service area in which aircraft earth stations operate, the coordination area is the service area extended in all directions by a coordination distance of 1 000 km.

Reason: See USA/ /21.

USA/ /44 ADD 3.1.1 No coordination under paragraph 3.1 is required when an administration proposes:

a) to bring into use an earth station the coordination area of which does not include any of the territory of any other country; or

b) to change the characteristics of an existing assignment in such a way as not to increase the interference to or from the terrestrial radiocommunication stations of other administrations or the earth station of other administrations in the opposite direction of transmission; or

c) to bring into use a new frequency assignment to a receiving earth station and the notifying administration states that it accepts the interference resulting from existing and future terrestrial station assignments or earth station assignments in the opposite direction of transmission.

d) In such cases, the administration responsible for the terrestrial station(s), or the earth station(s), is not required to apply the provisions of Section IV, or Section III respectively, hereof.

Reason: To extend to earth stations of non-geostationary-satellite networks exemptions from coordination, or re-coordination as the case may be, each of which currently appears in the Radio Regulations in respect to earth stations of geostationary-satellite networks.

Coordination Data

USA/ /45 (MOD) 3.2 For the purpose of effecting coordination, the administration requesting coordination shall send to each administration concerned under paragraph 3.1 all pertinent information concerning the proposed frequency assignment as listed in Appendix 3, and an indication of the approximate date on which it is planned to begin operations. A copy of this information with the date of dispatch of the request for coordination shall also be sent to the ~~Board~~ Bureau for information.

Reason: See USA/ /21.

Acknowledgement of Receipt of Coordination Data

3.3 An administration with which coordination is sought under paragraph 3.1 shall immediately acknowledge receipt of the coordination data.

Examination of Coordination Data and Agreement Between Administrations

3.4 On receipt of the coordination data, an administration shall, having regard to the proposed date of bringing into use of the assignment for which coordination was requested, promptly examine the matter with regard to both:

USA/ /46 MOD

3.4.1 interference which would affect the service rendered by its terrestrial radiocommunication stations or by its earth stations in the opposite direction of transmission, operating in accordance with the Convention and these Regulations, or to be so operated prior to the planned date of bringing into service of the earth station assignment, or within the next three years, whichever is the longer; and

Reason: To provide a coordination procedure to accommodate bi-directional operations in the FSS.

USA/ /47 MOD

3.4.2 interference which would be caused to reception at an earth station by the service rendered by its terrestrial radiocommunication stations or by its earth stations in the opposite direction of transmission, operating in accordance with the Convention and these Regulations, or to be so operated prior to the planned date of bringing into service of the earth station assignment, or within the next three years, whichever is the longer.

Reason: See USA/ /21.

USA/ /48 ADD

3.4.3 The periods referred to in paragraphs 3.4.1 and 3.4.2 may be extended by agreement between the administrations concerned in order to take planned terrestrial and space networks into account. The earth station to earth station coordination may commence five and one-half years before bringing into use these stations.

Reason: To embrace planned assignments up to the degree permitted under the well established, counterpart geostationary network procedures.

3.5 The administration with which coordination is sought shall, within four months from dispatch of the coordination data:

USA/ /49 (MOD)

3.5.1 notify the administration requesting coordination of its agreement with a copy to the ~~Board~~ Bureau , indicating, where appropriate, the part of the allocated frequency band containing the coordinated frequency assignments; or

Reason: See USA/ /21.

USA/ /50 ADD 3.5.2 send to that administration a request for inclusion in coordination of the terrestrial radiocommunication stations or the earth stations in the opposite direction of transmission mentioned in 3.4.1 and 3.4.2; or

Reason: To define an administration's minimum obligation to effect protection of its rights.

USA/ /51 (MOD) 3.5.~~2~~3 notify that administration of its disagreement.

Reason: Consequential.

USA/ /52 MOD 3.6 In the cases mentioned in paragraphs 3.5.2 and 3.5.3, the administration with which coordination is sought shall send to the administration requesting coordination a diagram drawn to an appropriate scale indicating the location of those terrestrial radiocommunication stations or earth stations in the opposite direction of transmission which are or will be within the coordination area, together with all other relevant basic characteristics using Appendix 1 or Appendix 3, as appropriate, and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem.

Reason: To inform the proponent administration, in sufficient specificity to facilitate any practicable technical measures, as to the assignments, notified or otherwise, for which protection is desired by the administration of whom coordination is being sought.

USA/ /53 MOD 3.7 When the administration with which coordination is sought sends to the administration seeking coordination the information required in the case of paragraph 3.5.~~2~~3, a copy thereof shall also be sent to the ~~Board~~ Bureau. The Bureau shall consider as notifications in accordance with Section I of Article 12 or Section I of Article 13, as appropriate, only that information relating to existing radiocommunication stations, or to those to be brought into use within the next three years.

Reason: To extend to the administration of whom coordination is sought the same rights as would have accrued had it notified its assignments prior to its receipt of the request for coordination.

USA/ /54 ADD 3.7.1 When an agreement on coordination is reached, as a consequence of paragraphs 3.5 to 3.7, the administration responsible for the terrestrial stations or the earth stations in the opposite direction of transmission, may send to the Bureau the information concerning those stations covered by the agreement which are intended to be notified in accordance with Section I of Article 12 or Section I of Article 13, as appropriate. The Bureau shall consider as notifications in accordance with those Sections only that information relating to existing radiocommunication stations or to those to be brought into use within the next three years.

Reason: To provide for the notification of successfully coordinated proposed assignments.

Notification of Frequency Assignments in the Event of Continuing Disagreement

USA/ /55 (MOD) 3.8 In the event of continuing disagreement between an administration seeking to effect coordination and an administration with which coordination has been sought, the administration seeking coordination shall, except in the cases where the assistance of the ~~Board~~ Bureau has been requested, defer the submission of its notice concerning the proposed assignment by six months from the date of the request for coordination, taking into account the provisions of No. 1496. When the assistance of the ~~Board~~ Bureau has been requested, the submission of the notice shall be deferred for a further three months.

Reason: See USA/ /21.

Section IV. Coordination of Frequency Assignments to Terrestrial Stations for Transmission in Relation to Earth Stations of a Non-Geostationary-Satellite Network

Requirement for Coordination

USA/ /56 (MOD) 4.1 Before an administration notifies to the ~~Board~~ Bureau, or brings into use any frequency assignment to a terrestrial station for transmission within the coordination area[6] of an earth station of a non-geostationary-satellite network, in a band allocated with equal rights to terrestrial radiocommunication services and space radiocommunication

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[6] The coordination area is defined as the service area in which it is intended to operate the typical earth stations, extended in all directions by a coordination distance of 500 km, or as a circular zone with a radius of 500 km centered on the coordinates of the fixed earth station. For a service area in which aircraft earth stations operate, the coordination area is the service area extended in all directions by a coordination distance of 1 000 km.

services (space-to-Earth), it shall effect coordination of the proposed assignment with the administration responsible for the earth stations with respect to the frequency assignments:

Reason: See USA/ /21.

4.1.1 which are in conformity with No. 1503; and

4.1.2 for which coordination has been agreed under paragraph 3.5.1., or

USA/ /57 ADD

4.1.3 which are to be taken into account for coordination with effect from the date of communication of the information referred to in paragraph 3.1.

Reason: To take into account proposed conforming assignments which have commenced coordination.

USA/ /58 ADD

4.1 bis No coordination under paragraph 4.1 is required when an administration proposes:

a) to bring into use a terrestrial station which is located, in relation to an earth station, outside the coordination area; or

b) to change the characteristics of an existing assignment in such a way as not to increase the interference to the earth stations of other administrations; or

c) to bring into use a terrestrial station within the coordination area of an earth station, provided that the proposed terrestrial station assignment is outside any part of a frequency band coordinated under 3.5.1 for reception by that earth station.

Reason: To enumerate particular proposed terrestrial assignments not requiring coordination.

Coordination Data

4.2 For the purpose of effecting coordination, the administration requesting coordination shall send to each administration concerned under paragraph 4.1 all pertinent information. The request for coordination may specify all or some of the frequency assignments expected to be used within the next three years by stations of a terrestrial network wholly or partly within the coordination area of the earth stations. Thereafter each assignment shall be dealt with individually.

Acknowledgement of Receipt of Coordination Data

4.3 An administration with which coordination is sought under paragraph 3.1 shall immediately acknowledge receipt of the coordination data.

Examination of Coordination Data and Agreement Between Administrations

4.4 On receipt of the coordination data, the administration with which coordination is sought shall promptly examine the matter with regard to interference which would affect the services rendered by its earth stations covered by paragraph 4.1, which are operating or are to be operated within the next three years.

4.5 The administration with which coordination is sought shall, within an overall period of four months from dispatch of the coordination data, either notify the administration requesting coordination of its agreement to the proposed assignment or, if this is not possible, indicate the reasons for its objection and make such suggestions as it may be able to offer with a view to a satisfactory solution of the problem.

Notification of Frequency Assignments in the Event of Continuing Disagreement

USA/ /59 (MOD) 4.6 In the event of continuing disagreement between an administration seeking to effect coordination and an administration with which coordination has been sought, the administration seeking coordination shall, except in the cases where the assistance of the ~~Board~~ Bureau has been requested, defer the submission of its notice concerning the proposed assignment by six months from the date of the request for coordination, taking into account the provisions of Nos. 1230 and 1496. When the assistance of the ~~Board~~ Bureau has been requested, the submission of the notice shall be deferred for a further three months.

Reason: See USA/ /21.

Section V. Notification of Frequency Assignments

Notification of Assignments to Space Stations and Earth Stations

USA/ /60 (MOD) 5.1 An administration shall, for the purpose of notifying an assignment to the ~~Board~~ Bureau, apply the provisions of Article 13. When applying the provisions of Article 13 to frequency assignment notices relating to space stations and earth stations covered by this Resolution, the ~~Board~~ Bureau shall:

Reason: See USA/ /21.

5.1.1 in applying No. 1504, also examine the notice with respect to its conformity with the provisions of paragraphs 2.1 or 2.2 relating to coordination of the use of the frequency assignment with the other administrations concerned;

5.1.2 in applying No. 1505, also examine the notice with respect to its conformity with the provisions of paragraph 3.1 relating to coordination of the use of the frequency assignment with the other administrations concerned;

5.1.3 in applying No. 1506, also examine the notice with respect to the probability of harmful interference when the coordination under paragraph 2.1 or 2.2 has not been successfully effected;

5.1.4 in applying No. 1509, also examine the notice with respect to the probability of harmful interference when the coordination under paragraph 3.1 has not been successfully effected;

5.1.5 not apply Nos. 1515 and 1516.

5.2 The examination under paragraph 5.1.3 or 5.1.4 shall take into account the frequency assignments for transmission or reception already recorded in the Master Register.

Notification of Assignments to Terrestrial Stations

USA/ /61 (MOD) 5.3 An administration shall, for the purpose of notifying an assignment to the ~~Board~~ Bureau, apply the provisions of Article 12. When applying the provisions of Article 12 the ~~Board~~ Bureau shall, in application of No. 1353, examine frequency assignment notices relating to terrestrial stations covered by this Resolution with respect to their conformity with the provisions of paragraph 4.1 relating to coordination of the use of the frequency assignment with the other administrations concerned.

Reason: –See USA/ /21.

Section E

RECOMMENDED UNITED STATES PROPOSALS

Agenda Item 3d)

Document -E
14 June 1995
Original: English

United States of America

Proposals for Agenda Item 3(d

ADDITIONAL ALLOCATIONS

Introduction:

Following WARC-92, the United States received applications for non-geostationary fixed satellite services operating in the Ka band. These low earth orbiting satellites have the ability to deliver advanced, broadband, digital transmissions at a low cost, regardless of location.

These systems can provide an instant telecommunications infrastructure, vital for economic development as well as for education, government, health care and public services. Due to the cost of setting up wireline or terrestrial networks, many remote parts of the US, and the world, do not have advanced communications networks and may never develop such an infrastructure. These low earth orbiting broadband satellite networks enable local telephone companies, network service providers, and government authorities around the world to cost-effectively modernize the existing communications infrastructure, increasing economic opportunity and quality of life. One such operator has even offered in an international forum to offer excess system capacity to developing nations on a non-profit basis.

Spectrum is already allocated in the Ka band for the fixed-satellite service. Therefore, there is only the need to provide certainty in the availability of this spectrum where these emerging technologies, proposed for operation within the next five years, will operate. The following USA proposal addresses the addition of footnotes to the Radio Regulations to allow for the accommodation of such satellite systems

USA/ /1 MOD

GHz
18.8-19.7

<table>
<tr><th colspan="3">Allocation To Services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td colspan="3">18.8-19.7 FIXED
FIXED-SATELLITE-SERVICE (space-to- Earth)ADD873H
ADD 873I</td></tr>
</table>

USA/ /1 MOD

GHz
27.5-29.5

<table>
<tr><th colspan="3">Allocation To Services</th></tr>
<tr><th>Region 1</th><th>Region 2</th><th>Region 3</th></tr>
<tr><td colspan="3"></td></tr>
<tr><td colspan="3">28.5-29.5 FIXED
FIXED-SATELLITE SERVICE (Earth-to-space)882DADD 873H ADD873I
MOBILE
Earth Exploration-Satellite(Earth-to-space)882C
882B</td></tr>
</table>

ADD 873H The provisions of RR No.2613 do not apply to non-geostationary fixed satellite systems operating in the bands 18.8 - 19.3GHz(space-to-Earth) and 28.6 - 29.1 GHz(Earth-to-space). Stations of GSO fixed satellite service networks brought into use in the band 18.8 - 19.3GHz (space-to-Earth) and 28.6 - 29.1 (Earth-to-space) after November xx, 1995 shall not claim protection from and shall not cause harmful interference to non-geostationary fixed satellite service networks in this band.

REASON: Procedural revisions are necessary to provide a regulatory base which would permit the orderly operation of non-geostationary fixed-satellite services without any regulatory uncertainties to their full operational life. Consequently, the provisions of RR No.2613 would not apply in this band, but only for non-geostationary fixed-satellite service in the specific directions of transmission.

NOTE: Proposed footnotes 873H and 873I and proposed footnotes 882H, 882I, 872A, 872B, 872C, and 872D involve frequencies that overlap. In the event both of these proposals are adopted by the Conference, these new footnotes would need to be combined in an amended table of allocations.

ADD 873I After November xx, 1995, the use of the bands 18.8-19.3GHz(space-to-Earth) and 28.6-29.1GHz(Earth-to-space) by the fixed satellite service is subject to the application of the coordination and notification procedures set forth in MOD Res 46 for the coordination between non-geostationary satellite networks and between non-geostationary satellite networks and terrestrial networks.

REASON: Procedures are required to facilitate the orderly operation of non-geostationary fixed satellite systems. Therefore, the application of the coordination and notification procedures set forth in MOD Resolution 46 would be necessary for shared, co-directional use of the band by non-geostationary fixed satellite networks.

NOTE: Proposed footnotes 873H and 873I and proposed footnotes 882H, 882I, 872A, 872B, 872C, and 872D involve frequencies that overlap. In the event both of these proposals are adopted by the Conference, these new footnotes would need to be combined in an amended table of allocations.

Section F

RECOMMENDED UNITED STATES PROPOSALS

Agenda Item 1

VGE - Task 1

United States of America

Proposals for Agenda Item 1
(Concerning Task 1 of the Report of the VGE)

Introduction: Within Task 1, the VGE studied the allocation process and the allocation table itself. Individual experts suggested many changes that would in theory improve the allocation of the spectrum. However, during the VGE work, most of the approaches were found to have drawbacks. Approaches that simplified the allocation process or consolidated services appeared to lead to more complicated coordination requirements. None of the proposed methods guaranteed significant improvements over the existing process. The result is a set of principles recommended by the VGE which should be applied, while recognizing that specific factors could not be ignored.

The United States supports the basic Task 1 Recommendations (**Recommendations 1/1 through 1/6**) dealing with the framework for allocation of frequencies to maintain the existing allocation system. The United States further agrees that the "Permitted" category of service is no longer necessary. The purpose for the permitted service can be met through other means.

Recommendations 1/7 through 1/12, methods of frequency allocations and use of footnotes, provide principles to be used in the allocation of spectrum. The United States supports these principles believing that they provide for allocation flexibility while keeping the allocation table simple. Each recommendation recognizes that specific circumstances and factors determine final allocation decisions. The application of these principles must be performed on a case-by-case basis.

The United States supports **Recommendations 1/13 through 1/16** as an adequate system for implementing the VGE recommendations over the long term. In order to maintain prominence of these concepts as succeeding WRC's address allocation issues, the United States proposes Recommendation No. ZZZ.

Recommendations 1/17 through 1/27, for the most part, represent immediate actions that can be taken to follow the principles set out in earlier recommendations. Therefore, these recommendations are set out as recommended action for WRC-95. Except where noted, we support all of these actions. In particular, the following actions are foreseen:

- **Recommendation 1/17** addresses conversion of the Permitted service allocations (Recommendation 1/5).

- **Recommendation 1/18** concerns the deletion of the term "Aeronautical Fixed Service", and consequent conversion of related allocations. The United States supports this action (as this service is no longer required as a distinct service.) However, we note that there will be a need to define clearly the process for conversion of existing frequency assignments and implement any new allocations in the two bands affected (near 22 MHz and 23 MHz).

- **Recommendations 1/19 and 1/20** propose a method of carrying out Recommendation 1/12 by creating a single format for footnotes to the Table of Frequency Allocations that refer to former Article 14. **Recommendation 1/21** proposes use of a linking provision (ADD 436A) citing a requirement to complete procedures of the new Article S9. It is our view that this linking provision unnecessarily complicates the understanding of the notes and runs counter to the intent of the VGE to simplify. How a specific assignment is in conformity with the Table of Frequency Allocations only after successful application of Article S9 is not clear. For example, what is the status of an assignment for which S9 is successfully applied in coordination with some countries, but not others? It would be simpler to have each of the footnotes refer, instead, directly to the new Article S9. The requirement to coordinate would be maintained, and an assignment's status with respect to particular countries would be as addressed within that Article. **Recommendation 1/22** asks the Bureau to consult with administrations about the possibility of having a future conference suppress notes that have not been invoked and are no longer needed.

- **Recommendation 1/23** pertains to consolidation and standardization of several footnotes related to Radio Astronomy. We generally support this approach; however, we see a need to correct frequency entries in the new consolidated note MOD RR 533 (S5.149) as detailed below.
- **Recommendation 1/24** outlines proposals to combine and standardize wording for notes realated to *Industrial, Scientific and Medical* (ISM) applicaitons.
- **Recommendation 1/25** outlines proposals to combine wording for several footnotes in bands allocated to passive services where all emissions are prohibited.
- **Recommendations 1/26, and 1/27** address themselves to the Bureau and Administratives to set up a process for review of country footnotes (Recommendations 1/15 and 1/16) that may no longer be needed.

Specific proposals regarding VGE Task 1 are contained below.

Article 8 (S5)
Frequency Allocations

Section II. Categories of Service and Allocations

USA/ /1
SUP **436A** (S5.45)

Reason: Provision unnecessary; suppressed to facilitate simplification.

USA/ /2
(MOD) **452** (S5.61)

In Region 2, the establishment and operation of stations in the maritime radionavigation service in the bands 70- 90 kHz and 110 - 130 kHz shall be subject to agreement obtained under the procedure ~~set forth in Article 14~~ applicable under S9.21 with administrations whose services, operating in accordance with the Table, may be affected. However, stations of the fixed, maritime mobile and radiolocation services shall not cause harmful interference to stations in the maritime radionavigation service established under such agreements.

USA/ /3 to USA/ /60	Similar to (MOD) 452 shown above, replace the phrase: "set forth in Article 14" with "applicable under S9.21", in the following provisions:

USA/ /3	**(MOD) 484**
USA/ /4	**(MOD) 485**
USA/ /5	**(MOD) 487**
USA/ /6	**(MOD) 513**
USA/ /7	**(MOD) 567**
USA/ /8	**(MOD) 572A**
USA/ /9	**(MOD) 581**
USA/ /10	**(MOD) 590A**
USA/ /11	**(MOD) 591**
USA/ /12	**(MOD) 608**
USA/ /13	**(MOD) 613B**
USA/ /14	**(MOD) 616**
USA/ /15	**(MOD) 619**
USA/ /16	**(MOD) 635**
USA/ /17	**(MOD) 638**
USA/ /18	**(MOD) 641**
USA/ /19	**(MOD) 643**
USA/ /20	**(MOD) 645A**
USA/ /21	**(MOD) 648**
USA/ /22	**(MOD) 660A**
USA/ /23	**(MOD) 668**
USA/ /24	**(MOD) 672**
USA/ /25	**(MOD) 673**
USA/ /26	**(MOD) 674**
USA/ /27	**(MOD) 675**
USA/ /28	**(MOD) 678**
USA/ /29	**(MOD) 692**
USA/ /30	**(MOD) 692A**
USA/ /31	**(MOD) 700**
USA/ /32	**(MOD) 701**
USA/ /33	**(MOD) 703**
USA/ /34	**(MOD) 704**
USA/ /35	**(MOD) 704A**
USA/ /36	**(MOD) 706**
USA/ /37	**(MOD) 707A**
USA/ /38	**(MOD) 712A**
USA/ /39	**(MOD) 732**
USA/ /40	**(MOD) 733**
USA/ /41	**(MOD) 733B**
USA/ /42	**(MOD) 745**
USA/ /43	**(MOD) 746**
USA/ /44	**(MOD) 754**
USA/ /45	**(MOD) 754A**
USA/ /46	**(MOD) 757**
USA/ /47	**(MOD) 761**
USA/ /48	**(MOD) 763**
USA/ /49	**(MOD) 766**
USA/ /50	**(MOD) 791**

USA/ /51 (MOD) 797
USA/ /52 (MOD) 797B
USA/ /53 (MOD) 810
USA/ /54 (MOD) 811
USA/ /55 (MOD) 812
USA/ /56 (MOD) 815
USA/ /57 (MOD) 831
USA/ /58 (MOD) 839
USA/ /59 (MOD) 852
USA/ /60 (MOD) 892

Reason: *Consequential to incorporation of former Article 14 into new Article S9.*

Section IV. Table of Frequency Allocations

USA/ /61 MOD 533 (S5.149) *In making assignments to stations of other services to* which the bands

13 360-13 410 KHz,
25 550-25 670 KHz,
37.5-38.25 MHz,
73-74.6 MHz in Regions 1 and 3,
79.75-80.25 MHz in Region 3,
150.05-153 MHz in Region 1,
322-328.6 MHz,
406.1-410 MHz,
608-614 MHz in Regions 1 and 3,
1 330-1 400 MHz*,
1 610.6-1 613.8 MHz,
1 660-1 670 MHz,
1 718.8-1 722.2 MHz*,
2 655-2 690 MHz,

4 825-4 835 MHz*,
4 950-4 990 MHz,
4 990-5 000 MHz,
10.6-10.68 GHz,
14.47-14.5 GHz,
22.01-22.21 GHz*,
22.21-22.5 GHz,
22.81-22.86 GHz*,
23.07-2312 GHz,
31.2-31.3 GHz*,
31.5-31.8 GHz in Regions 1 and 3,
36.43-36.5 GHz*,
42.5-43.5 GHz*,
~~42.77-42.87 GHz*~~,
~~43.07-43.17 GHz*~~,
~~43.37-43.47 GHz*~~,

93.07-93.27 GHz*,
97.88-98.08 GHz*,
140.69-140.98 GHz*,
144.68-144.98 GHz*,
145.45-145.75 GHz*,
146.82-147.12 GHz*,
150-151 GHz*,
174.42-175.02 GHz*,
177-177.4 GHz*,
178.2-178.6 GHz*,
181-181.46 GHz*,
186.2-186.6 GHz,
250-251* GHz,
257.5-258 GHz*,
261-265 GHz,
262.24-262.76*,
265-275 GHz*,

3 260-3 267 MHz*,

3 332-3 339 MHz*,

3 345.8-3 352.5 MHz*,

48.94-49.04 GHz*,

~~265.64-266.16 GHz*~~,

~~267.34-267.86 GHz*~~,

~~271.74-272.26 GHz*~~,

are allocated (*indicates radio astronomy use for spectral line observations), administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference. Emissions from space- or airborne stations can be particularly serious sources of interference to the radio astronomy service (see Nos. **S4.5** and **S4.6** and Article **S29**).

Reason: to provide the proper band limits in the VGE recommended text. RR 900 and RR 926 provide protection to the radio astronomy service in the entire 42.5-43.5 GHz and 265-275 GHz bands, respectively.

USA/ /62 SUP 700
Mob-87 ~~*Additional allocation:* in Region 2, the band 806-890 MHz is also allocated to the mobile-satellite service on a primary basis. The use of this service is intended for operation within national boundaries and subject to agreement obtained under the procedure set forth in Article 14.~~

Reason: No application of the mobile-satellite service in this band is foreseen.

USA/ /63 SUP 704A ~~*Additional allocation:* in Brazil, Canada and the United States of America the band 890-896 MHz is also allocated to the mobile-satellite service on a primary basis. The use of this service is intended for operation within national boundaries and subject to agreement obtained under the procedure set forth in Article 14. In seeking such agreement, appropriate protection shall be afforded to services operating in accordance with the Table.~~

Reason: The United States no longer has a need to maintain this regulation. We understand also that neither Brazil nor Canada require this footnote as well. VGE Recommendation 1/15 pertains.

USA/ /64 **ADD** **Recommendation No. ZZZ**

Method of Frequency Allocation and The Use of Footnotes

The World Radiocommunication Conference, Geneva, 1995

Considering

a) that Article 8 (S5), the Table of Frequency Allocations, represents the basis for specification of uses of radio frequency bands;

b) that, in order to ensure that the Table of Frequency Allocations provides for national flexibility in spectrum use, principles of allocation are needed;

c) that, in order to ensure that footnotes allow modification to the Table of Frequency Allocations without unnecessarily complicating it, principles related to the use of footnotes are needed;

Recommends That Future World Radiocommunication Conferences

a) should, wherever possible, allocate frequency bands to the most broadly defined services to provide the maximum flexibility to administrations in spectrum use, taking into account safety, technical, operational, economic and other relevant factors;

b) should, wherever possible, allocate frequency bands on a worldwide basis – aligned services, categories of services and frequency band limits, taking into account safety, technical, operational, economic and other relevant factors;

c) should, wherever possible, adopt footnotes to the Table of Frequency Allocations that are confined to altering, limiting, or otherwise changing the relevant allocations rather than dealing with the operation of stations, assignment of frequencies or other matters;

d) should include only those footnotes to the Table of Frequency Allocations which have international implications for the use of the radio-frequency spectrum;

e) should adopt new footnotes to the Table of Frequency Allocations only;

1) to achieve flexibility in the Allocation Table; or

2) to protect existing usage when the relevant allocations are changed; or

3) to introduce either transitional or permanent restrictions on a new service to achieve compatibility; or

4) to provide for the specific requirements of a country or area when it is impracticable to meet such needs otherwise within the Table of Frequency Allocations'

f) should adopt footnotes, which are serving a common purpose, and should be written in a common format, wherever possible, and be grouped into a single footnote with appropriate references to the relevant frequency bands;

g) when adopting recommendations on future WRC agendas that concern frequency allocations for radio services, should include adequate scope for consideration of recommendations a) through f) above, and should allow the suppression of country footnotes or the suppression of country names from footnotes irrespective of the agenda otherwise defined.

Recommends To Administrations

h) that in making proposals to WRCs, account should be taken of recommendations a) through g);

Instructs The Director Of The Radiocommunication Bureau In Consultation With The Radio Regulations Board

i) to periodically review footnotes, in consultation with concerned administrations, and communicate the results to the next competent WRC, with a view to administrations proposing the suppression of their country footnotes, or their own country names from footnotes as appropriate.

Reason: To continue recommendations 1/7 - 1/16 of the VGE with respect to the methods of allocating spectrum and the use of footnotes.

Document -E
14 June 1995
Original: English

United States of America

Proposals for Agenda Item 1

SIMPLIFIED PROCEDURES

APPENDIX S 25

Frequency Allotment Plan for Coast Radiotelephone Stations Operating in the Exclusive Maritime Mobile Bands between 4 000 kHz and 27 500 kHz

General:

VGE Recommendation No. 2/4 identified Appendix 25 and Article 16 as an area where the Radio Regulations could be simplified. Considering that Appendices 26, 27, 30, 30A and 30B are virtually stand-alone plans that contain most of the provisions for their coordination, notification and modification and further noting the VGE's efforts in simplifying the Radio Regulations, particularly the provisions related to Appendix 25, the United States believes that Appendix 25 and Article 16 should be consolidated into a stand-alone plan. Therefore the United States submits proposal Appendix S25 "Frequency Allotment Plan for Coast Radiotelephone Stations Operating in the Exclusive Maritime Mobile Bands Between 4 000 kHz and 23 000 kHz." This proposal includes the appropriate provisions of Article 12, Article 16 in its entirety, and appropriate provisions of Article 60 (S52), along with the current allotment plan as a replacement for the aforementioned provisions.

USA/ /1 (ADD) ARTICLE 1

Procedure for Bringing Up to Date the Frequency Allotment[1] Plan for Coast Radiotelephone Stations Operating in the Exclusive Maritime Mobile Bands Between 4 000 kHz and 23 000 kHz

1682

§ 1. (1) Before notifying to the ~~International Frequency Registration Board~~ Radiocommunication Bureau or bringing into use at any coast radiotelephone station a frequency assignment not covered by an allotment in the Frequency Allotment Plan contained in Appendix S 25, an administration which

1683

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[1] See No. 18, Article S1.

a) intends to establish a coast radiotelephone station and has no allotment in the Plan, *or*

1684 *b)* intends to expand its coast radiotelephone service and requires an additional allotment,

shall send the information listed in Appendix 5 to the ~~Board~~ Bureau not earlier than two years in the case of No. 1683, or not earlier than six months in the case of No. **1684**, before the projected date of bringing into service of the planned coast radiotelephone service but in any case not later than three months before that date.

1685 (2) The ~~Board~~ Bureau shall publish the information sent under Nos. **1682** to **1684** in a special section of the ~~IFRB Weekly Circular~~ BR Weekly Circular together with such apparent incompatibilities between the proposed allotment which is the subject of the publication and any other existing or proposed allotments which the ~~Board~~ Bureau can identify. The ~~Board~~ Bureau shall also indicate any information of a technical nature and make such suggestions as it may be able to offer with a view to avoiding these incompatibilities.

1686 (3) If it is requested by any administration, particularly by an administration of a country in need of special assistance, and if the circumstances appear to warrant, the ~~Board~~ Bureau, using such means at its disposal as are appropriate in the circumstances, shall render the following assistance:

1687 *a)* indication of a suitable channel or channels for the service projected by the administration before that administration submits the information for publication;

1688 *b)* carry out the procedure for which provision is made in No. **1690**;

1689 *c)* any other assistance of a technical nature for completion of the procedure in the present Article.

1690 § 2. (1) At the same time as sending the information listed in Appendix 5 to the ~~Board~~ Bureau for publication, an administration shall seek the agreement of the administrations having an allotment in the same channel as the proposed allotment. A copy of the relevant correspondence shall be sent to the ~~Board~~ Bureau.

1691 (2) Any administration which, upon examining the information published by the ~~Board~~ Bureau, considers that its existing services or services planned within the time-limits mentioned in Nos. **1682** to **1684** would be affected shall have the right to be brought into the procedure undertaken pursuant to No. 1690.

1692 § 3. (1) An administration which receives a request under No. 1690 shall acknowledge receipt thereof immediately by telegram. If no acknowledgement is received within thirty days after the date of the ~~IFRB Weekly Circular~~ BR Weekly Circular containing the information published under No. 1685, the administration seeking agreement shall dispatch a telegram requesting acknowledgement, to which the receiving administration shall reply within a further period of fifteen days.

1693 (2) Upon receipt of the request under No. 1690, an administration shall, having regard to the proposed date of bringing into use of the assignment(s) corresponding to the allotment for which agreement was requested, promptly examine the matter with regard to harmful interference which would be caused to the services rendered by its coast station(s):

1694 *a)* using a frequency assignment corresponding to an allotment appearing in the Plan; *or*

1695 *b)* to be brought into service in conformity with an allotment appearing in the Plan within the time-limit prescribed in No. 1720; *or*

1696 *c)* to be brought into service within the time-limit prescribed in No. 1720, in conformity with a proposed allotment for which the information has been submitted to the ~~Board~~ Bureau under Nos. 1682 to 1684 for publication under No. 1685.

1697 (3) Any administration which receives a request under No. 1690 and which considers that the proposed use of a channel will not cause harmful interference to the services rendered by its coast stations as outlined in Nos. 1693 to 1696 shall, as soon as possible and not later than two months from the date of the relevant ~~IFRB Weekly Circular~~ BR Weekly Circular, notify its agreement to the administration seeking agreement.

1698 (4) Any administration which receives a request under No. 1690 and which considers that the proposed use of a channel may cause harmful interference to the services rendered by its coast stations as outlined in Nos. 1693 to 1696 shall inform the administration concerned of the reasons for its disagreement as soon as possible and not later than two months from the date of the relevant ~~IFRB Weekly Circular~~ BR Weekly Circular and shall furnish any information and suggestions with a view to reaching a satisfactory solution of the problem. The administration seeking agreement shall try, as far as possible, to adjust its requirements according to the comments received.

1699 (5) In a case where the administration seeking agreement has no allotment in the band concerned, the administration(s) with which agreement is sought shall, in consultation with the requesting administration, explore all means of meeting the requirement of the requesting administration.

1700 § 4. (1) An administration seeking agreement may request the ~~Board~~ Bureau to endeavour to obtain such agreement in those cases where:

1701 *a)* an administration to which a request has been sent under No. 1690 fails to acknowledge receipt of the request within forty-five days from the date of the ~~IFRB Weekly Circular~~ BR Weekly Circular containing the pertinent information;

1702 *b)* an administration has acknowledged receipt under No. 1692 but fails to give a decision within two months from the date of the ~~IFRB Weekly Circular~~ BR Weekly Circular containing the pertinent information;

1703 *c)* there is disagreement between the administration seeking agreement and an administration with which agreement is sought as to the sharing possibilities;

1704 *d)* it is not possible to reach agreement for any other reason.

1705 (2) Either the administration seeking agreement or an administration with which agreement is sought, or the ~~Board~~ Bureau, may request additional information which it may require in studying any problem relating to this agreement.

1706 (3) Where the ~~Board~~ Bureau receives a request under No. 1701, it shall forthwith send a telegram to the administration concerned requesting immediate acknowledgement.

1707 (4) Where the ~~Board~~ Bureau receives an acknowledgement following its action under No. 1706, or where the ~~Board~~ Bureau receives a request under No. 1702, it shall forthwith send a telegram to the administration concerned requesting an early decision in the matter.

1708 (5) Where the ~~Board~~ Bureau receives a request under No. 1704, it shall endeavour to obtain agreement to which reference is made in No. 1690. Where the ~~Board~~ Bureau receives from an administration no acknowledgement to the request it made under the terms of No. 1690 for agreement within the period specified in No. 1692, it shall act, in so far as this administration is concerned, in accordance with No. 1706.

1709

(6) Where an administration fails to reply within fifteen days of the ~~Board~~ Bureau's telegram requesting an acknowledgement sent under No. 1706, or fails to give a decision in the matter within thirty days of dispatch of the ~~Board~~ Bureau's telegram of request under No. 1707, it shall be deemed that the administration with which agreement was sought has undertaken, once the projected allotment is included in the Plan:

1710

a) that no complaint will be made in respect of any harmful interference which may be caused to the services rendered by its coast radiotelephone stations by the use of assignments in accordance with the allotment for which agreement was requested; *and*

1711

b) that its existing or projected coast radiotelephone stations will not cause harmful interference to the use of assignments in conformity with the allotment for which agreement was requested.

1712

(7) The ~~Board~~ Bureau shall enter a remark in the Remarks Column of the Master Register for each assignment covered by the allotment in question, indicating that this assignment does not benefit from the provisions of No. 1416 of the present Regulations with respect to assignments of the administration seeking the agreement.

1713

(8) The ~~Board~~ Bureau shall examine the proposed allotment with respect to the probability of harmful interference which it may receive from an allotment in the Plan of the administration which failed to reply or which indicated disagreement without supplying the reasons; if the finding is favourable and where the application of the present procedure with respect to the other administrations concerned permits, the ~~Board~~ Bureau shall enter the proposed allotment in the Plan.

1714

(9) In the event of an unfavourable finding, the ~~Board~~ Bureau shall inform the administration concerned of the result of the examination; if the administration insists, and where the application of the present procedure with respect to the other administrations concerned permits, the ~~Board~~ Bureau shall enter the proposed allotment in the Plan.

1715

(10) Where the ~~Board~~ Bureau receives a request under No. 1703, it shall assess the sharing possibilities and it shall inform the administrations concerned of the results obtained.

1716

(11) In the case of continuing disagreement, the ~~Board~~ Bureau shall examine the proposed allotment from the point of view of harmful interference which may be caused to the services rendered by the stations of the administration having declared

its disagreement. In the case where the ~~Board~~ Bureau's finding is favourable and where the application of the present procedure with respect to the other administrations concerned permits, it shall enter the proposed allotment in the Plan.

1717 (12) If, after the examination under No. 1716, the ~~Board~~ Bureau reaches an unfavourable finding, it shall then examine the proposed allotment from the point of view of harmful interference which may be caused to the services on all the various channels in the band. Should the ~~Board~~ Bureau reach an unfavourable finding in each case, it shall determine the channel which is the least affected and, if so requested by the administration seeking agreement, it shall enter the proposed allotment in this channel in the Plan.

1718 § 5. An administration seeking agreement for a proposed allotment shall inform the ~~Board~~ Bureau of the results of its consultations with the administrations concerned. When the ~~Board~~ Bureau finds that the procedure prescribed in this Article has been applied with respect to each administration concerned, the ~~Board~~ Bureau shall publish its finding in a special section of the ~~IFRB Weekly Circular~~ BR Weekly Circular and, as the case may be, bring the Plan up to date.

1719 § 6. Notwithstanding the above provisions and if the circumstances justify, an administration may, in exceptional circumstances, notify to the ~~Board~~ Bureau for provisional entry in the Master Register an assignment which is not covered by an allotment in the Plan. That administration shall, however, begin forthwith the procedure prescribed in this Article.

1720 § 7. When, within twelve months from the date of the inclusion of the allotment in the Plan, the ~~Board~~ Bureau does not receive a notice of a first frequency assignment corresponding to this allotment, or where the first notified frequency assignment has not been brought into use within the time-limits prescribed in the present Regulations, before proceeding with the deletion of the allotment from the Plan, it shall consult with the administration concerned on the appropriateness of such a deletion and of publishing this information in connection with bringing the Plan up to date. However, in the case where the ~~Board~~ Bureau, in the light of a request from the administration concerned, finds that exceptional circumstances warrant an extension of this period, the extension shall in no case exceed six months, except in the case of an administration which has no coast station in service in which case the period may be extended to eighteen months.

1721 § 8. Any administration in whose name an allotment is shown in the Plan, and which has a need to replace this allotment by another allotment in the same frequency band with a view to improving its service, shall apply the procedure described in this Article. When that administration arrives at a positive result in applying this procedure, the ~~Board~~ Bureau, at its request, shall replace the existing allotment in the Plan by the proposed allotment.

1722

§ 9. The ~~Board~~ Bureau shall maintain an up-to-date master copy of the Plan resulting from the application of this procedure. It shall prepare in a suitable form, for publication by the Secretary General, the whole or part of the revised version of the Plan as and when the circumstances justify and in any case once annually.

Reason: Simplification through consolidation.

USA/ /2 (ADD) ARTICLE 2

Procedure to Be Followed for Notifying Assignments to Coast Radiotelephone Stations Operating in the Bands Allocated Exclusively to the Maritime Mobile Service Between 4 000 kHz and 27 500 kHz

1315

§24. **(1)** ***Examination of Notices Concerning Frequency Assignments to Coast Radiotelephone Stations in the Bands Allocated Exclusively to the Maritime Mobile Service Between 4 000 kHz and 27 500 kHz for Coast Radiotelephone Stations (see No. 1239).***

1316

(2) The ~~Board~~ Bureau shall examine each notice covered by No. 1315:

1317

a) **with respect to the provisions of No. 1240 and in particular those of Appendix 16 and Nos. 4371 and 4373;**

1318

b) **in order to determine whether the notified assignment is in conformity with an allotment in the Allotment Plan contained in Appendix 25 to these Regulations.**

1319

(3) Any frequency assignment for which the finding is favourable with respect to Nos. 1317 and 1318 shall be recorded in the Master Register (see also No. 1314). The date to be entered in Column 2a shall be that determined according to the relevant provisions of Section III of this Article.

1320

(4) Any frequency assignment for which the finding is unfavourable with respect to No. 1317 shall be examined with respect to Nos. 1267 and 1268. The date to be entered in Column 2b shall be determined according to the relevant provisions of

Section III of this Article.

1320A (4A) Any notice which has received a favourable finding with respect to No. 1317 but an unfavourable finding with respect to No. 1318 shall be returned to the notifying administration unless the administration has initiated the procedure of Article 16 in accordance with No. 1719.

1321 (5) Any notice which makes reference to No. 1719 shall be recorded provisionally in the Master Register, if the finding with respect to No. 1317 is favourable. In this case the ~~Board~~ Bureau shall review the recording after the notifying administration has applied the procedure of Article 16.

1326 § 25. (1) *Examination of Notices Concerning Frequencies Used for Reception by Coast Radiotelephone Stations in the Bands Allocated Exclusively to the Maritime Mobile Service Between 4 000 kHz and 27 500 kHz for Ship Radiotelephone Stations (see Nos.* 1219 *and* 1239*).*

1327 (2) The ~~Board~~ Bureau shall examine each notice covered by No. 1326:

1328 *a)* with respect to the provisions of No. 1240 and in particular those of Appendix 16 and Nos. 4371 and 4374;

1329 *b)* in order to determine whether the notified assignment corresponds to a frequency associated, according to Appendix 16, with a frequency allotted to the notifying administration in the Allotment Plan contained in Appendix 25 to these Regulations.

1330 (3) Any frequency assignment for reception by a coast radiotelephone station for which the finding is favourable with respect to Nos. 1328 and 1329 shall be recorded in the Master Register. The date to be entered in Column 2a shall be that determined according to the relevant provisions of Section III of this Article.

1331 (4) Any frequency assignment for reception by a coast radiotelephone station for which the finding is unfavourable with respect to No. 1328 shall be examined with respect to Nos. 1267 and 1268. The date to be entered in Column 2b shall be that determined according to the relevant provisions of Section III of this Article.

1332 (5) Any notice which has received a favourable finding with respect to No. 1328 but an unfavourable finding with respect to No. 1329 shall be returned to the notifying administration unless the administration has initiated the procedure of Article 16 in accordance with No. 1719.

1332A

(6) Any notice which makes reference to No. 1719 shall be recorded provisionally in the Master Register, if the finding with respect to No. 1328 is favourable. In this case the ~~Board~~ Bureau shall review the recording after the notifying administration has applied the procedure of Article 16.

1391

§ 41. (1) *Frequency Bands Allocated Exclusively to the Maritime Mobile Service Between 4 000 kHz and 27 500 kHz for Coast Radiotelephone Stations.*

1392

(2) If the finding is favourable with respect to Nos. 1317 and 1318, the date of 1 July 1989 shall be entered in Column 2a.

1393

(3) **For all other cases referred to in No. 1315, the date** of receipt of the notice by the ~~Board~~ Bureau shall be entered in Column 2b.

1394

(4) For assignments to stations other than radiotelephone coast stations, the relevant date shall be entered in Column 2b (see Nos. 1271 and 1272).

1395

§ 42. (1) *Frequency Bands Allocated Exclusively to the Maritime Mobile Service Between 4 000 kHz and 27 500 kHz for Ship Radiotelephone Stations.*

1396

(2) If the finding is favourable with respect to Nos. 1328 and 1329, the date of 1 July 1989 shall be entered in Column 2a.

1397

(3) In all other cases covered by No. 1326, the date of receipt of the notice by the ~~Board~~ Bureau shall be entered in Column 2b.

1398

(4) For assignments other than assignments of frequencies for reception by radiotelephone coast stations, the relevant date shall be entered in Column 2b (see Nos. 1271 and 1272).

Reason: Simplification through consolidation.

APPENDIX S 25

Frequency Allotment Plan for Coast Radiotelephone Stations Operating in the Exclusive Maritime Mobile Bands between 4 000 kHz and 27 500 kHz

[The fully elaborated frequency allotment plan is to follow.]

Section G

RECOMMENDED UNITED STATES PROPOSALS

Agenda Item 1

VGE - Task 2

Document WRC95/ -E
14 June 1995
Original: English

United States of America

Proposals for Agenda Item 1

SIMPLIFIED PROCEDURES

General:

In the process of "simplification" attempted by the Voluntary Group of Experts, some details were left to be developed, or were removed and left to treatment in ancillary texts, e.g., the Rules of Procedure and the Appendices. Because these ancillary texts assume a new level of importance, it is in general necessary to consider them and the proposed revised Radio Regulations -- two physically separate texts -- before one can hope to fully appreciate the procedure.

It is not clear that this situation is in fact simpler.

A principle requiring decision by WRC-95 is "What is simpler?" One must go to three or more documents -- the thinner Radio Regulations, the Recommendations of the ITU-R, the Rules of Procedure, the Preface to the IFL, and so on -- to secure answers often now available in the Radio Regulations.

Coordination can be simplified. However, VGE did not go far enough and, in at least one case, went backward. VGE's results would increase[7] the workload.

Our proposals are built upon extensive experience. In our opinion, emerging and experienced administrations can both gain the same level of protection with considerably less work. That is a central concern in a time of diminishing resources coupled with more entrants to space radiocommunication.

If there is a majority view favouring the "simplified" procedures, then substantive matters arise in their rationalisation. Several of these are treated below.

USA/ /1 NOC

ARTICLE S7

Application of the Procedures

Reason: The VGE recommended text is useful to all administrations.

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[7] See corrective proposal USA/ /39 in this document.

ARTICLE S8

Status of Frequency Assignments Recorded in the Master International Frequency Register

USA/ /2 MOD
S8.2

A frequency assignment shall have the right to international protection from harmful interference when it is recorded in the Master Register with the indication that it is in accordance with a frequency allotment or assignment plan adopted by a Conference or as modified following successful application of the procedure for modification of the relevant plan. This protection shall be afforded to allotments or assignments appearing in a world or a regional plan, to the extent provided by these Regulations and the relevant agreement. In the case of a regional plan, such protection shall be limited to the countries which are parties to the relevant regional agreement; relations between parties and non-parties are governed by the provisions of these Regulations. The right to international protection from harmful interference shall also be afforded to any frequency assignment to a station in the fixed service in the high frequency bands with class of operation A or as selected in accordance with Nos. S11.16 and S13.5 of Articles S11 and S13 respectively.

Reason: This restores an important provision deleted by the VGE. Class of operation A assignments of all administrations warrant specific continued protection from harmful interference.

USA/ /3 MOD
S8.3

Any frequency assignment recorded in the Master Register with an indication that it is in accordance with the Table of Frequency Allocations and the ~~associated provisions of these Regulations~~ other provisions of the Radio Regulations with the exception of those provisions relating to the probability of harmful interference shall have the right to international recognition. For such an assignment, this right means that other administrations shall take it into account when making their own assignments in order to avoid harmful interference. The right to international recognition shall also be afforded to any frequency assignment to a station in the fixed service in the appropriate bands between 3 000 kHz and 27 000 kHz with class of operation B.

Reason: VGE Note 2 indicates that difficulties have arisen from the absence of a precise definition of the term "associated provisions". For the purposes of the Simplified Procedures the VGE nevertheless continued to use this term but recognised that it must be identified definitively, and that in the VGE's opinion it will be for the Bureau to do so. In effect this leaves the Bureau in the position of drafting text that affects Members' fundamental rights, perhaps with Member input sometime later.

This illustrates that in the VGE scenario the Rules of Procedure take on a greatly increased importance. Without an explanation of the "difficulties" referred to, the VGE lacked a basis for recommending a change to the existing wording.

Rather than deal in multiple uncertainties, we prefer the existing tried and true language. It has been restored above.

USA/ /4 MOD
S8.4

A frequency assignment shall be known as a non-conforming assignment when it is not in accordance with the Table of Frequency Allocations or the ~~associated provisions of these Regulations~~ other provisions of the Radio Regulations with the exception of those provisions relating to the probability of harmful interference. Such an assignment shall be recorded for information purposes, only when the notifying administration states that it will be operated in accordance with S8.5. (See also S4.4.)

Reason: **See USA/ /3.**

ARTICLE S9

Procedure for Effecting Coordination with or Obtaining Agreement of Other Administrations[1, 2, 3, 4]

Section I. Advance Publication of Information on Planned Satellite Networks or Satellite Systems

USA/ /5 MOD
S9.1

Before initiating any action under this Article in respect of frequency assignments for a satellite network or a satellite system, an administration, or one[5] acting on behalf of a group of named administrations, shall prior to the coordination procedure described in Section II below, where applicable, send to the Bureau a general description of the network or system for advance publication in the Weekly Circular not earlier than six years and preferably not later than two years before the planned date of introduction of the network or system (see also No. S11.44). The characteristics to be provided for this purpose are listed in **Appendix S4**. The coordination or notification information may also be communicated to the Bureau at the same time; it shall be considered as having been received by the Bureau not earlier than six months after the date of receipt of the information for advance publication where coordination is required by Section II. In the case where coordination is not required by Section II, notification shall be considered as received by the Bureau not earlier than six months after the date of publication of the advance publication information.

Reason: To restore, and correct, RR1058E. The WARC-ORB-88 exceeded its competency when it modified this provision with regard to both geostationary and non-geostationary networks. We correct this error.

USA/ /6 ADD
S9.2bis

If the information is found to be incomplete, the Bureau shall immediately seek from the administration concerned any clarification and information not provided.

Reason: To direct BR action in the event of incomplete information.

USA/ /7 ADD
S9.2ter

On receipt of the complete information sent under S9.1 and S9.2, the Bureau shall publish it in a special section of its Weekly Circular promptly.

Reason: To require prompt publication of the Advance Publication information.

USA/ /8 MOD
S9.3

Upon receipt of the Weekly Circular containing information published under No. S9.1, if an administration believes that interference which may be unacceptable may be caused to its existing or planned networks or systems it shall within four months of the date of the Weekly Circular communicate its comments and shall, at the same time, give to the publishing administration particulars of the interference foreseen to its existing or planned satellite systems. A copy of these comments shall also be sent to the Bureau.[1] Thereafter both administrations shall endeavour to cooperate in joint efforts to resolve any difficulties, ~~with~~ if ~~necessary~~ requested by either of the parties, with the assistance of the Bureau, and shall exchange any additional relevant information that may be available. If no such comments are received from an administration within the period mentioned above, it may be assumed that that administration has no basic objection to the planned satellite network(s) of that system on which details have been published.

Reason: To provide for simple bilateral contact between the parties involved unless at least one wishes otherwise, and to make explicit the otherwise presumed meaning of the absence of comment.

USA/ /9 MOD
S9.4

In the case of difficulties, the administration responsible for the planned satellite network shall explore all possible means to resolve the difficulties without considering the possibility of adjustment to networks of other administrations. If no such means can be found, the administration responsible for the planned network may request the other administrations to explore all possible means to meet its requirements. The administrations concerned shall make every possible effort to resolve the difficulties by means of mutually acceptable adjustments to their networks. An administration on behalf of which details of planned satellite networks have been published in accordance with the provisions of No. S9.2ter shall, after the period of four months, inform the Bureau of the progress made in resolving any difficulties. A further report, if necessary, should be provided prior to the commencement of coordination or the sending of notices to the Bureau. The Bureau shall publish this information verbatim in the special section of its Weekly Circular.

Reason: In difficult cases administrations should continue to be required to provide a report to the Bureau on the results of the advance publication phase for publication as is currently provided for in RR1056.

USA/ /10 MOD
S9.5

~~Action under No. S9.1 shall be taken not earlier than six years and preferably not later than two years before the planned date of introduction of the network or system (see also No. S11.43). A response under No. S9.3 shall be made as soon as possible and in any case within four months after the publication of the relevant Weekly Circular.~~ The Bureau shall inform all administrations of the list of administrations having sent comments under No. S9.3. These measures shall be taken solely for the purposes of informing all administrations of developments in the use of space radiocommunications and minimising any difficulties that might otherwise arise during the coordination stage. (See also No. S11.47.)

Reason: Consequential to MOD S9.1 and MOD S9.3, and to keep all administrations informed.

Section II. Coordination Procedure[1]
Sub-Section IIA. Requirement and Request for Coordination

USA/ /11 MOD
S9.6

Before an administration[1, 2] notifies to the Bureau or brings into use a frequency assignment in any of the cases listed below, notwithstanding any other provision of the Radio Regulations, it shall effect coordination only with respect to stations of the same or a higher category of service with other administrations identified under No. MOD S9.27:

Reason: Simplification. Coordinating with stations of a lower category of service elevates those stations to primary.

USA/ /12 MOD
S9.15

i) any ~~individual~~ earth station at a fixed location or typical mobile earth station in frequency bands above 1 Ghz allocated with equal rights to space and terrestrial services and where the coordination area of the earth station includes the territory of another country[VGE - Note - 4];

Reason: The meaning of "individual" in this context is not clear. The phrase "earth station at a fixed location" is unambiguous.

USA/ /13 SUP

[VGE - Note - 4] ~~WRC-95 may wish to review the limit of 1 Ghz which stems from RR1107 and RR1148.~~

Reason: The present Appendix 28 does not apply below 1 GHz and therefore the frequency limits of RR1107 and RR1148 cannot be changed until a satisfactory procedure is agreed for determining the coordination area in such cases.

USA/ /14 MOD
S9.16

j) ~~a fixed~~ an earth station at a fixed location or a typical earth station in respect of terrestrial stations in frequency bands to which MOD Resolution 46 applies allocated with equal rights to space and terrestrial services and where the coordination area of the earth station includes the territory of another country[8].

Reason: To make clear what meaning "fixed" has in this context, and to simplify by eliminating unnecessary coordination in cases where a power flux-density specified in the Radio Regulations is not exceeded.

USA/ /15 ADD

S9.16 does not apply to the coordination of an Earth-to-space assignment of earth stations of a satellite network vis-α-vis terrestrial services in the case where a pfd limit at the border of the territory of another administration, specified in a provision of the Radio Regulations, is not exceeded.

S9.16bis ibis) an earth station at a fixed location, or a transmitting earth station operating within the coordination area of a receiving earth station, or a typical mobile earth station in respect of other earth stations operating in the opposite direction of transmission in frequency bands to which Resolution 46 applies allocated with equal rights to space radiocommunication services in both directions of transmission and where the coordination area of the earth station includes the territory of another country;

Reason: To protect reverse band working.

USA/ /16 MOD
S9.21 o) any station of a service for which the requirement ~~to coordinate or~~ to ~~obtain~~ seek the agreement of other administrations is included in a footnote of the Table of Frequency Allocations ~~[referring to S5.45] or in any other provision of these Regulations~~.

Reason: For further simplification consequential to SUP No. S5.45.

USA/ /17 ADD
S9.21bis No coordination is required:

a) when the use of a new frequency assignment will cause, to any service of another administration, an increase in the level of interference, calculated in accordance with the method referred to in Table S5-1, which does not exceed the threshold level defined therein; or

b) when the interference resulting from a modification to a frequency assignment which has previously been coordinated will not exceed that value agreed during coordination; or

c) to change the characteristics of an existing assignment in such a way as not to increase the interference to the assignments of other administrations; or

d) for assignments to stations comprising a satellite network in relation to assignments of other satellite networks:

i) when an administration proposes to notify or bring into use, within the service area of a satellite network, a typical earth station or an earth station which would not cause or suffer interference of a level greater than the typical earth station; or

ii) when an administration proposes to notify or bring into use a new earth station which would not cause or suffer interference of a level greater than that which would be caused by an earth station belonging to the same satellite network and whose characteristics have been published in accordance with No. MOD S9.34 or notified to the Bureau without coordination in those cases where coordination was not required; or

iii) for a new frequency assignment to a receiving station, when the notifying administration states that it accepts the interference resulting from the frequency assignments referred to in No. MOD S9.27; or

iv) between earth stations using frequency assignments in the same direction (either Earth-to-space or space-to-Earth); or

e) for assignments to earth stations in relation to terrestrial stations, when an administration proposes:

i) to bring into use an earth station the coordination area of which does not include any of the territory of any other country;

ii) to operate a mobile earth station. However, if the coordination area associated with the operation of such a mobile earth station includes any of the territory of another country, the operation of such a station shall be subject to agreement on coordination between the administrations concerned. This agreement shall apply to the characteristics of the mobile earth station(s), or to the characteristics of a typical mobile earth station, and shall apply to a specified service area. Unless otherwise stipulated in the agreement, it shall apply to any mobile earth stations in the specified service area provided that interference caused by them shall not be greater than that caused by a typical earth station for which the technical characteristics appear in the notice and have been or are being submitted in accordance with Section I of Article S11; or

iii) to bring into use a new frequency assignment to a receiving earth station and the notifying administration states that it accepts the interference resulting from existing and future terrestrial station assignments. In such case, administrations responsible for the terrestrial stations are not required to apply the provisions of No. S9.17 of Article S9;

f) for bringing into use an assignment to a terrestrial station which is located, in relation to an earth station, outside the coordination area of that earth station; or

g) for bringing into use an assignment to a terrestrial station within the coordination area of an earth station, provided that the proposed terrestrial station assignment is outside any part of a frequency band coordinated for reception by that earth station.

Reason: To simplify coordination. No chance of international argument can be risked as to the *possibly* diminished status of treaty text moved to appendices of the Radio Regulations.

USA/ /18 MOD
S9.24

If there is a requirement to ~~obtain~~ seek agreement under No. MOD S9.21 as well as coordination under ~~any other provision of~~ Nos. S9.7 or S9.15 ~~S9.6 the~~ an agreement obtained under No. MOD S9.21 shall be ~~considered as valid for the purposes of that other provision in relation to the administration concerned~~ deemed to constitute successful application of the relevant part of procedure of this Article.

Reason: To simplify by overcoming existing multiple coordination requirements.

USA/ /19 MOD
S9.26

Coordination may be effected for a satellite network using the information relating to the space station, including its service area, and the parameters of one or more typical earth stations located in all or part of the service area of the space station. ~~The same provision~~ A corresponding procedure shall apply to typical terrestrial stations except for those mentioned in No. S11.18 to S11.23.

Reason: For specificity in both cases.

USA/ /20 MOD
S9.27

~~Frequency assignments to be taken into account in effecting coordination are specified for each case in Appendix S5. The requesting administration shall, by applying the calculation method and criteria contained in that Appendix to those frequency assignments, identify the administrations with which coordination is to be effected.~~ For the purpose of effecting coordination under Article S9 and for identifying the administrations with which coordination is to be effected, the frequency assignments to be taken into account are those in the same frequency band as the planned assignment, pertaining to the same service or to another service to which the band is allocated with equal rights or a higher category[9] of allocation, and which are:

a) in conformity with No. S11.31; and

b) either recorded in the Master Register, or coordinated under the provisions of Article S9; or

c) included in the coordination procedure with effect from the date of receipt by the Bureau, in accordance with No. MOD S9.34, of the relevant information as specified in Appendix S4; or

d) already notified to the Bureau, under No. S9.32, without any coordination in those cases where No. ADD S9.21bis applies; or

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[9] This does not apply to the coordination between an earth station and terrestrial stations under Nos. S9.15, S9.16, S9.17, S9.18 [~~and~~] or S9.19.

e) for terrestrial radiocommunication stations operating in accordance with these regulations, or to be so operated prior to the date of bringing the earth station assignment into service, or within the next three years, whichever is the longer.

Reason: See USA/ /23.

USA/ /21 SUP
S9.28 ~~The requesting administration may also seek the assistance of the Bureau in identifying any other administrations having assignments which may need to be taken into account.~~

Reason: See USA/ /23.

USA/ /22 MOD
S9.29 Requests for coordination made under Nos. S9.15 - S9.19 shall be sent by t~~T~~he requesting administration ~~shall then send~~ to the identified administrations~~, with a copy to the Bureau[1], a request for coordination~~ together with the appropriate information listed in **Appendix S4** to these Regulations.

Reason: See USA/ /23.

USA/ /23 SUP
S9.29.1 ~~[1] Requests for coordination made under Nos. S9.17 - S9.19 are not required under this provision to be copied to the Bureau.~~

Reason: For extensive simplification. Treat all coordination requests alike. The Bureau publishes the coordination request received and administrations respond, just as under the existing Resolution 46.

This creates far less work for administrations, and creates no work for the Bureau. Much less paper is used, thereby improving the environment.

USA/ /24 MOD
S9.30 Requests for coordination made under Nos. S9.7 - [S9.16bis], S9.20 and MOD S9.21 shall be sent by the requesting administration to the Bureau together with appropriate information listed in Appendix S4 to these Regulations. ~~The requesting administration may alternatively send the appropriate information to the Bureau for publication in the Weekly Circular[1] as a request for coordination.~~

Reason: Consequential to USA/ /23.

USA/ /25 SUP
S9.30.1

[2] ~~Requests for coordination made under Nos. S9.15 - S9.19 shall not be published in the Weekly Circular.~~

Reason: Consequential to USA/ /23.

USA/ /26 MOD
S9.34

On receipt of the complete information sent under No. ~~S9.29~~ MOD S9.30 or No. S9.32 the Bureau shall promptly:

Reason: Consequential to CPM95 adjustments to both Nos. S9.29 and S9.30, as reflected above.

S9.35

a) examine that information with respect to its conformity with No. S11.31;

USA/ /27 MOD
S9.36

b) identify in accordance with No. MOD S9.27 any ~~other~~ administrations whose services may be affected;

Reason: Simplification. Consequential to USA/ /23.

USA/ /28 ADD
S9.36.1

The list of administrations identified by the Bureau under S9.12, S9.13, S9.14 and MOD S9.21 are only for information purposes to help administrations comply with this procedure.

Reason: To make clear the nature of the list.

S9.37

c) include their names in the information sent under No. MOD S9.29;

USA/ /29 MOD
S9.38

d) publish, as appropriate,[1] the complete information in the Weekly Circular not later than in a four-month period;

Reason: Prompt publication is essential.

[1] Requests for coordination under Nos. S9.15 - S9.19 shall not be published in the Weekly Circular.

USA/ /30 SUP
S9.39 ~~c) inform all administrations of the publication using the most modern means of communications;~~

Reason: Simplification, and to minimise resource wastage.

USA/ /31 SUP
S9.40 ~~f) inform the administrations concerned of its actions, communicate the results of its calculations, drawing attention to the relevant Weekly Circular.~~

Reason: Simplification, and to minimise resource wastage.

USA/ /32 ADD
S9.40bis If the information is found to be lacking at least one basic characteristic, the Bureau shall immediately seek from the administration concerned any clarification and information not provided.

Reason: To direct BR action in the event of incomplete information.

USA/ /33 MOD
S9.41 Following receipt of the Weekly Circular, published in accordance with No. MOD S9.38, referring to an appropriate request processed under No. MOD S9.30, an administration believing that it should have been included in the request shall, within four months ~~of~~ from the date of ~~publication~~ the relevant Weekly Circular, inform the initiating administration and the Bureau, giving its technical reasons for doing so, and shall request that its name be included.

Reason: The date of actual publication of the Weekly Circular may substantially follow the date appearing upon its face. As the latter is known worldwide, and is known not to have caused confusion, it is preferred unchanged.

USA/ /34 MOD
S9.42 The Bureau shall study this information on the basis of Appendix S5[1] ~~and the Rules of Procedure~~ and shall inform both administrations of its conclusions.

Reason: To accord with the view advanced by CPM95.

USA/ /35 ADD
S9.42.1 See also paragraph S9.50.2.

Reason: To prescribe the study's basis.

USA/ /36 MOD
S9.43 ~~When these Regulations do not permit the identification of all affected administrations,~~ Following action under No. MOD S9.41, those Administrations not responding within the time limit specified in No. MOD S9.41 shall be regarded as unaffected and the provisions of S9.48 and S9.49 shall apply.

Reason: Each affected administration should respond on time.

USA/ /37 MOD
S9.44 The administration seeking agreement and those with which it is sought, or the Bureau when acting pursuant to Article S7, No. S7.6, may request any additional information they consider necessary. ~~The Bureau shall be sent copies of any such requests and the replies.~~

Reason: Simplification. Coordination is among administrations. Conveying information exceeding that needed to conclude coordination is superfluous.

Sub-Section IIB. Acknowledgement of Receipt of a Request for Coordination

USA/ /38 MOD
S9.45 An administration receiving a request for coordination shall, within 30 days from the date of the ~~relevant Weekly Circular~~ request, acknowledge receipt by telegram to the requesting administration~~, with a copy to the Bureau~~. In the absence of an acknowledgement of receipt of its request within the 30 days the requesting administration shall send a telegram requesting an acknowledgement~~, with a copy to the Bureau~~.

Reason: Simplification. Consequential to USA/ /23.

Sub-Section IIC. Action Upon a Request for Coordination

USA/ /39 MOD
S9.50 An administration having received a request for coordination, or having been included in the procedure following action under No. MOD S9.41, shall promptly examine the matter with regard to interference which may be caused to ~~or by~~ its own assignments[1], - [2]. For the assignments to be taken into account, see ~~Appendix S5~~[3] No. MOD S9.27.

Reason: Re-simplification. The VGE greatly complicated these provisions.

Through VGE's adding the words "or by", when you receive a request for coordination, you would not only have to analyse interference that may be caused by the requestor to you but also the interference you may cause to the requestor. At this stage, it would seem inappropriate to require the administration receiving the request for coordination to analyse the interference which may be caused by its own assignments.

This would be a significant, unnecessary complication of the current situation. Each administration's workload would be doubled, and with redundant work.

USA/ /40 SUP
S9.50.1 ~~In cases where the administration with which the coordination has been sought is unable to assess interference, which may be caused by its own assignments, it should provide details of those assignments to the requesting administration.~~

Reason: Re-simplification. Consequential to USA/ /39.

USA/ /41 MOD
S9.51 Following its action under No. MOD S9.50 the administration with which coordination was sought under MOD S9.30 shall within four months of the date of publication of the relevant Weekly Circular either inform the requesting administration ~~and the Bureau~~ of its agreement[VGE - Note - 6] or act under No. MOD S9.52. In the case of a request for coordination under No. MOD S9.29 ~~which is not required to be published in the Weekly Circular, the (i.e. S9.15 - S9.19)~~, the four-month period shall commence on the date of the request.

Reason: Simplification. Consequential to USA/ /23.

USA/ /42 SUP [VGE - Note - 6] ~~It is assumed that the Rules of Procedure will provide for the case when an administration informs the Bureau that it is prepared to accept a level of interference exceeding that considered during the coordination stage.~~

Reason: Aide memoire. Not needed.

USA/ /43 MOD
S9.52 If an administration, following its action under No. MOD S9.50 does not agree to the request for coordination, it shall within the ~~same~~ four month period inform the requesting administration of its disagreement and shall provide information concerning its own assignments upon which that disagreement is based. It shall also make such suggestions as it is able to offer with a view to a satisfactory resolution of the matter. A copy of that information shall be sent to the Bureau. Where that information relates to terrestrial stations or earth stations in the opposite direction of transmission within the coordination area of an earth station, ~~it~~ only that information relating to existing radiocommunication stations or to those to be brought into use within the next three months shall be treated as notifications under Nos. S11.2 or S11.9.

Reason: To specify which existing or planned assignments are to be taken into account.

USA/ /44 ADD
S9.52bis

When an agreement on coordination is reached, the administration responsible for the terrestrial stations or the earth station operating in the opposite direction of transmission may send to the Bureau the information concerning those stations covered by the agreement which are intended to be notified under Nos. S11.2 or S11.9. The Bureau shall consider as notifications only that information relating to existing radiocommunication stations or to those to be brought into use within the next three years.

Reason: To specify possible onward action.

USA/ /45 MOD
S9.55

All administrations may use correspondence, any appropriate means of telecommunication, or meetings as necessary to assist in resolving the matter, the results of which shall be communicated to and published in the Weekly Circular, as appropriate, by the Bureau.

Reason: To provide for publication of results.

USA/ /46 SUP
S9.56

~~In exceptional cases involving networks of the fixed-satellite service, the requesting administration may undertake multilateral coordination in the form of a multilateral planning meeting (MPM) in the following frequency bands:~~

~~3 700 — 4 200 MHz~~
~~5 850 — 6 425 MHz~~
~~10.95 — 11.20 GHz~~
~~11.45 — 11.70 GHz~~
~~11.70 — 12.20 GHz~~
~~12.50 — 12.75 GHz[1]~~
~~14.00 — 14.50 GHz~~

Reason: Simplification. Meetings among administrations do not require enablement within the Radio Regulations.

USA/ /47 SUP
S9.56.1

~~[1] When a fixed-satellite network is to be operated in the frequency band 12.5 — 12.75 GHz as well as under No. S5.491 in the frequency band 12.2 — 12.5 GHz this provision may apply for coordination of the network.~~

Reason: Simplification. See USA/ /46.

USA/ /48 SUP
S9.57 ~~The administration seeking coordination may initiate action to convene an MPM in accordance with resolves 1 to 7 of Resolution 110 to resolve mutually the difficulties and effect the coordination of the satellite network. The results shall be regarded as coordination agreements among the administrations participating and shall in no way prejudice the rights of non-participants.~~

Reason: Simplification. See USA/ /46.

Sub-Section IID. Action in the Event of No Decision or Disagreement Upon a Request for Coordination

USA/ /49 MOD
S9.60 If an administration with which coordination is sought fails to reply or to give a decision in the matter within the four-month period specified in No. **MOD S9.51**, ~~the requesting administration may seek the assistance of the Bureau~~ it shall be deemed that the administration with which coordination was sought has undertaken:

a) that no complaint will be made in respect of any harmful interference affecting the services rendered by its space radiocommunication stations which may be caused by the use of the assignment to a station of the satellite network for which coordination was requested;

b) that its space radiocommunication stations will not cause harmful interference to the satellite network assignment for which coordination was requested.

Reason: Simplification. Administrations should approach coordination seriously, and in sufficient time that a response can be afforded within the prescribed time limit. So amending this procedure lightens both administrations' and the Bureau's workload.

USA/ /50 SUP
S9.61 ~~The Bureau, acting on a request for assistance under No. S9.60, shall forthwith request the administration concerned to give an early decision in the matter.~~

Reason: Simplification. No longer needed. Consequential to USA/ /49.

USA/ /51 SUP
S9.62 ~~If the administration concerned still does not give a decision in the matter within thirty days of the Bureau's action under No. S9.61 the provisions of Nos. S9.48 and S9.49 shall apply.~~

Reason: Simplification. No longer needed. Consequential to USA/ /49.

USA/ /52 MOD
S9.63 If there is continuing disagreement, or if any administration involved in the matter has requested the assistance of the Bureau, the latter shall seek any necessary information to enable it to assess the interference. ~~It shall communicate its conclusions to the administrations involved.~~ The Bureau shall inform the administrations concerned of the results obtained.

Reason: To clarify by using regulatory language whose meaning has been established.

S9.65 If at the date of receipt of a notice under No. S9.64 above the Bureau has been informed of a continuing disagreement, it shall examine the notice under No. S11.33[1] and shall act in accordance with No. S11.38.

USA/ /53 MOD
S9.65.1 [1] A notice of a frequency assignment, for which coordination was requested under No. **MOD S9.21 and about which there is a continuing disagreement, shall not be examined under No. S11.33**; it shall, however, be examined under No. ~~S9.31~~ S11.31 ~~taking into account No. S5.45~~.

Reason: Consequential to SUP S5.45.

General:

Notification and recording generally follow bilateral contact, where required, by administrations. By the notification stage the more difficult work is usually complete. Even so, further simplification beyond the recommendations taken by the VGE is possible in some instances.

ARTICLE S10

Procedure for Modification of a Frequency Allotment or Assignment Plan

The VGE developed ARTICLE S10 with the aim of simplifying the task of administrations and the Radiocommunication Bureau when modifying certain world plans. The provisions in ARTICLE S10 are intended to be a generic replacement for the modification procedures of Appendices 25, 30, and 30A of the Radio Regulations. The VGE determined that Appendices 26, 27, and 30B were fundamentally different and therefore not suitable candidates for application of ARTICLE S10. The VGE confirmed this in Recommendation No. 2/7.

VGE Recommendation No. 2/4 addresses the adoption of ARTICLE S10 to replace the ARTICLE 16 procedures that pertain solely to Appendix 25.

VGE Recommendation No. 2/5 addresses Appendices 30 and 30A with the intent of replacing the plan modification procedures contained in Article 4 of each plan with the provisions of ARTICLE S10.

If ARTICLE S10 were adopted for Appendices 25, 30, and 30A, a subsequent action under VGE Recommendation 2/6 is required to treat the development of

APPENDIX S6 by WRC-95. Further, the provisions of Chapter SIII should be considered for application to Appendices 30 and 30A instead of the current procedures for the coordination, examination, and recording of frequency assignments, excluding the provisions of ARTICLE S10 relating to plan modification.

CPM-95 spent considerable time addressing Article S10. Its results are contained in Chapter 4 paragraph 1.4 of the CPM-95 Report. The Working Party of the CPM noted the difficulties in applying this procedure to Appendices 25, 30, and 30A. A new Article T10 was developed to show how the procedure might be applied to Appendices 30 and 30A. In order to accomplish this, all the procedures that might apply to Appendix 25 were deleted. This indicates that the generic procedure for plan modification should not be included in the Radio Regulations because it is not usable without being specifically tailored for each Plan.

The United States believes that ARTICLE S10 and APPENDIX S6 are not sufficiently developed to be applied as a generic plan modification procedure. The inclusion of ARTICLE S10 in the Radio Regulations would serve no useful purpose and would add an entire article with no direct application to an existing plan.

The United States, noting the usefulness of a generic plan modification procedure to serve as a guide for the future development or modification of plans, believes that ARTICLE S10 be retained for future development and use. Therefore, the United States proposes Resolution No. USA-S10 be adopted in lieu of ARTICLE S10 and APPENDIX S6 as a means to preserve the work accomplished by the VGE and allow future radio conferences to consider its development and application. See USA/ /113 herein.

ARTICLE S11

Notification and Recording of Frequency Assignments[1, 2]

Section I. Notification

USA/ /54 MOD
S11.15.1 [1] A frequency assignment to a ~~space station~~ satellite network may be notified by one administration acting on behalf of a group of named administrations. Any further notice (modification or deletion) relating to such an assignment shall, in the absence of information to the contrary, be regarded as having been submitted on behalf of the entire group.

Reason: To continuing the practice of the notifying administration submitting typical earth stations on behalf of the entire group.

USA/ /55 MOD
S11.16

When any administration in need of special assistance desires to seek the help of the Bureau in selecting frequencies for a station of the fixed service in the high frequency bands allocated to that service, it shall notify such characteristics as it is able from the table in **Appendix S4** and shall state the specific assistance required from the Bureau.[2] See also Resolution 103.

Reason: To recognise that any administration may need special assistance. It is useful to note that all Members enjoy the same rights and are subject to the same obligations per Article 3, ITU Constitution, Geneva, 1992.

Section II. Examination of Notices and Recording of Frequency Assignments in the Master Register

USA/ /56 MOD
S11.41

After the return of notice under No. S11.38 or S11.40, should the notifying administration resubmit the notice and insist upon its reconsideration, the Bureau shall enter the assignment provisionally in the Master Register with an indication of those administrations whose assignments were the basis of the unfavourable finding. However, the entry shall be retained in the Master Register only if the Bureau is informed that the new assignment has been in use together with ~~the~~ an assignment which was the basis for the unfavourable finding for at least four months without any complaint of harmful interference being made (see Nos. S11.47 and S11.49). If harmful interference is actually caused, the administration responsible for the frequency assignment must on receipt of advice, eliminate the interference.

Reason: For precision.

USA/ /57 SUP
S11.42

~~Should harmful interference be caused by an assignment recorded under No. S11.41 to any assignment recorded with a favourable finding with respect to S11.32 or S11.33, the station using the former frequency assignment shall, upon receipt of advice thereof, immediately eliminate this harmful interference.~~

Reason: Redundant. The last sentence of No. 5.21 is sufficient.

USA/ /58 MOD
S11.44

Notwithstanding the date of receipt of the notice by the Bureau, ~~T~~the notified date of bringing into use of an assignment[1] in a satellite network shall be no later than six years following the date of publication of the ~~relevant~~ special section of the Weekly Circular containing the data for advance publication. The notified date of bringing into use will be extended at the request of the notifying administration by not more than three years.

Reason: To make clear that the date of receipt of the notice by the Bureau might occur later than nine years following the date of publication of the relevant special section of the Weekly Circular.

USA/ /59 (MOD)
S11.44.1

[1] The notified date of bringing into use of an assignment, when recorded in the Master Register, shall be for information only.

Reason: Editorial improvement.

USA/ /60 SUP
S11.49

~~Where the use of a recorded assignment to a space station is suspended for a period not exceeding eighteen months, the notifying administration shall, as soon as possible, inform the Bureau of the date on which such use was suspended and of the date on which the assignment is to be brought back into regular use. This latter date shall not exceed two years from the date of suspension.~~

Reason: Simplification. This provision is little used.

General:

Article S13 appears to be another case where the VGE undersimplified. The functions of the Bureau are given in simple terms by Article 16 of the Constitution together with Article 12 of the Convention (Geneva, 1992). The United States Administration welcomes other administrations' comments as to whether, under such circumstances, the matter need be treated in the Radio Regulations at all.

If WRC-95 deems this Article necessary, then we suggest specific further simplification.

ARTICLE S13

Instructions to the Bureau

USA/ /61 NOC

Section I. Assistance to Administrations by the Bureau

Reason: The principal role of the Bureau must continue to be assistance to administrations.

Section II: Maintenance of the Master Register by the Bureau

S13.11 The Bureau shall be solely responsible for maintenance of the Master Register in accordance with the Rules of Procedure and shall in particular:

S13.12 a) following consultation with administrations, from time to time make any necessary adjustments to the format, structure and presentation of data in the Master Register;

USA/ /62 SUP
S13.13 ~~b) periodically, in consultation with administrations, take action to review and improve the accuracy of sections of the Master Register by verifying that the recorded assignments have been brought into regular operation and are being used in accordance with the notified basic characteristics;~~[1]

Reason: Redundant. See CV172, especially "...and keep up to date the Master International Frequency Register....

USA/ /63 SUP
S13.13.1 [1] ~~1. Whenever the Bureau concludes, as a result of an enquiry with the administration concerned, that an assignment to a space or an earth station was not in use during a period exceeding two years, this assignment shall no longer be taken into account for the application of the procedures of Articles S9 and S11. The procedures of this Chapter shall apply from the date on which it is to be brought back into use;~~

Reason: Consequential to USA/ /62. A MIFR kept up to date per CV172 will contain active assignments.

General:

Article S14 implements a procedure for review of Bureau actions. It goes beyond the existing provisions of RR1001.1 and Resolution 35.

These recommendations of the VGE are acceptable.

USA/ /64 NOC

ARTICLE S14

Procedure for the Review of a Finding or Other Decision of the Bureau

Reason: The VGE recommended text is useful to all administrations.

General:

In general, the new characteristics of satellite networks or earth or radio astronomy stations set forth in Appendix S4, recommended by the VGE to replace those set forth in Appendices 3, 4, 30, 30A, and 30B, are acceptable. The United States is concerned that the new format may not be as readily understandable as the existing appendices and require more work on the Bureau's part to explain its implementation. Our proposals essentially reintroduce existing text taken from either the existing appendices or the Radio Regulations which we believe will clarify the required data elements and save Bureau resources by not having to explain these data items in other documents.

A principle requiring decision by WRC-95 is "What is simpler?" One must go to three or more documents -- the thinner Radio Regulations, the Rules of Procedure, the Preface to the IFL, Circular-letters, and so on -- to secure answers often now available in the Radio Regulations.

APPENDIX S4

Consolidated List and Tables of Characteristics for use in the Application of the Procedures of Chapter SIII

ANNEX 1A

List of characteristics of stations in the terrestrial services[1]

USA/ /65 MOD 1 Note: The Bureau shall develop and keep up-to-date forms of notice to meet fully the statutory provisions of this Appendix and related decisions of future conferences. ~~A detailed description of items listed in this annex together with an explanation of the symbols is to be found in the~~

~~Preface to the International Frequency List.~~

Reason: The definition of data items is a matter for administrations at a World Radiocommunication Conference. The Preface may suggest additional non-mandatory data which administrations may wish to consider. This annex defines the basic characteristics.

ANNEX 2A

Characteristics of satellite networks or earth or radio astronomy stations[1]

USA/ /66 MOD 1 Note: The Bureau shall develop and keep up-to-date forms of notice to meet fully the statutory provisions of this Appendix and related decisions of future conferences. ~~A detailed description of items listed in this annex together with an explanation of the symbols is to be found in the Preface to the International Frequency List.~~

Reason: The definition of data items is a matter for administrations. The Preface may suggest additional non-mandatory data which administrations may wish to consider. This annex defines the basic characteristics.

A. General characteristics to be provided for the satellite network or the earth or radio astronomy station

A.1 Identity of the satellite network or the earth or radio astronomy station

a) Identity of a satellite network.

b) Country and IFRB number (Regions 1 and 3); country and beam identification (Region 2).

c) Country and beam identification.

d) Country and identification of the allotment; for a network not derived from the Allotment Plan, the identity of the network.

e) Identity of an earth or radio astronomy station:

1) the type of earth station (specific or typical);

2) the name by which the station is known or the name of the locality in which it is situated;

3) for a specific earth station:

USA/ /67 MOD - the country or geographical area in which the station is located; using the symbols from the Preface to the International Frequency List;

Reason: To indicate where the acceptable list of country or geographical area symbols can be found.

- the geographical coordinates of each transmitting and receiving antenna site comprising the earth station (longitude and latitude in degrees and minutes as well as the seconds with an accuracy of one-tenth of a minute; the seconds need only be furnished if the coordination area of the earth station overlaps the territory of another administration.).

4) for a radio astronomy station:

USA/ /68 MOD - the country or geographical area in which the station is located; using the symbols from the Preface to the International Frequency List;

Reason: To indicate where the acceptable list of country or geographical area symbols can be found.

- the geographical coordinates of the station site (longitude and latitude in degrees and minutes).

USA/ /69 MOD f) Country symbol of the notifying administration. In the case of advance information, give the symbol of the administration or the symbols of the administrations in the group submitting the advance information on the satellite network.

Reason: To identify, for the case of a group of administrations, the administrations that are to be associated with the submission of the advance information.

A.2 Date of bringing into use

USA/ /70 MOD a) The date (actual or foreseen, as appropriate) of bringing the frequency assignment (new or modified) into use~~;~~. Whenever the assignment is changed in any of its basic characteristics (except in the case of a change in Item A.1.a), date to be given shall be that of the latest change (actual or foreseen, as appropriate).

Reason: To restore Appendix 3 item 2.A.2.b.

b) For the case of a space station aboard a geostationary satellite the period of validity of the frequency assignments (see Resolution 4 (Rev.Orb-88)).

c) The date (actual or foreseen, as appropriate) when reception of the frequency band either begins or when any of the basic characteristics are modified.

USA/ /71 MOD A.3 Operating administration or ~~company~~ entity

Symbols for the operating ~~agency~~ administration or entity and for the address of the administration to which communication should be sent on urgent matters regarding interference, quality of emissions and questions referring to the technical operation of the network or station (see Article S15 of the Radio Regulations).

Reason: To use a generic term for other than the administration. The term entity would encompass companies, other government agencies, etc.

A.6 Agreements

USA/ /72 MOD ~~a)~~ If appropriate, the country symbol of any administration with which agreement has been reached; including where the agreement is to exceed the limits prescribed in these Regulations.

Reason: Consequential to the deletion of No. A.6.b.

USA/ /73 SUP ~~b) If appropriate, the country symbol of any administration with which agreement has been reached in accordance with Article 89 of these Regulations.~~

Reason: Subparagraph (b) is not needed since subparagraph (a) pertains to all cases where an agreement has been reached.

A.7 Earth station site characteristics

For a specific earth station:

a) The horizon elevation angle in degrees for each azimuth around the earth station.

USA/ /74 MOD b) The planned minimum angle of elevation of the antenna in the direction of maximum radiation in degrees from the horizontal plane having due regard to possible inclined-orbit operation of the associated space station.

Reason: To restore the wording in Appendix 3 to clarify that the minimum elevation angle of an earth station should take into account any planned inclined-orbit operation of the associated geostationary space station.

USA/ /75 MOD c) The planned range of operating azimuthal angles for the direction of maximum radiation in degrees, clockwise from True North, having due regard to possible inclined-orbit operation of the associated space station.

Reason: To restore the wording in Appendix 3 to clarify that the azimuthal limits of an earth station should take into account any planned inclined-orbit operation of the associated geostationary space station.

d) The altitude (metres) of the antenna above mean sea level.

USA/ /76 MOD

A.10 Earth station coordination area diagrams. The diagrams shall be drawn to an appropriate scale indicating for both transmission and reception the location of the earth station and its associated coordination areas, or the coordination area related to the service area in which it is intended to operate the mobile earth station.

Reason: To define the diagrams as presently contained in RR1113.

USA/ /77 (MOD) **B. Characteristics to be provided for each satellite antenna beam or each earth or radio_astronomy station antenna**

Reason: Radio astronomy should be two words.

USA/ /78 MOD B.1 The designation of the satellite antenna beam and, if appropriate, an indication as to whether it is a steerable or reconfigurable antenna beam. The designation shall be a three character code, and the last character shall be an "R" if steerable or reconfigurable.

Reason: To define for administrations the data base field size and structure of the beam designator. The additional sentence also aligns with similar text in Appendices 3 and 4.

B.3 Geostationary space station antenna characteristics

a) Where it is intended to communicate with an earth station via an antenna pointing in a fixed direction:

1) the maximum isotropic gain (Dbi),

2) the antenna gain contours plotted on a map of the Earth's surface, preferably in a radial projection from the satellite onto a plane perpendicular to the axis from the centre of the Earth to the satellite. The space station antenna gain contours shall be drawn as isolines of the isotropic gain, at least for -2, -4, -6, -10 and -20 Db and at 10 Db intervals thereafter, as necessary, relative to the maximum antenna gain, when any of these contours is located either totally or partially anywhere within the limit of visibility of the Earth from the given geostationary satellite. Whenever possible the gain contours of the space station receiving antenna should also be provided in the form of a numerical equation.

b) Where a steerable beam (see No. 183) is used:

1) the maximum isotropic antenna gain (dBi) if the effective boresight area (see No. 168A) is identical with the global or nearly global service area; the maximum antenna gain is applicable to all points on the Earth's visible surface;

USA/ /79 (MOD)

2) the maximum antenna gain and the effective antenna gain contours (see No. 168B) if the effective boresight area (see No. 168A) is less than the global or nearly global service area. These contours shall be provided as defined in ~~a)~~ B.3.a.2 above.

Reason: For specificity so there is no confusion as to which subparagraphs are being referenced.

USA/ /80 (MOD)

c) Include, in the antenna gain contours of ~~a) 2)~~ B.3.a.2 and ~~b) 2)~~ B.3.b.2 above, the effect of the planned longitudinal tolerance, inclination excursion and pointing accuracy of the antenna.

Reason: For specificity so there is no confusion as to which subparagraphs are being referenced.

d) The pointing accuracy of the antenna.

e) The antenna radiation pattern where the antenna radiation beam is directed towards another satellite.

f) The gain of the antenna in the direction of those parts of the geostationary-satellite orbit which are not obstructed by the Earth, in the case of operation in a band allocated in the Earth-to-space direction and in the space-to-Earth direction;

g) For the case of a space station submitted in accordance with Appendix S30, Appendix S30A or Appendix S30B:

1) maximum isotropic antenna gain (dBi);

2) shape of the beam (elliptical, circular, or other);

3) for circular beams:

- half-power beamwidth in degrees;
- co-polar and cross-polar radiation patterns;
- nominal intersection of the antenna beam axis with the Earth (boresight longitude and latitude);

4) for elliptical beams:

- co-polar and cross-polar radiation patterns;
- rotational accuracy in degrees;
- major axis orientation in degrees anticlockwise from the Equator;
- major axis beamwidth (degrees) at the half-power points;
- minor axis beamwidth (degrees) at the half-power points;
- nominal intersection of the antenna beam axis with the Earth (boresight longitude and latitude);

5) for beams of other than circular or elliptical shape:

- co-polar and cross-polar gain contours plotted on a map of the Earth's surface;

6) ΔG (difference between the maximum gain and the gain in the direction of the point in the service area at which the power flux-density is at a minimum - for Regions 1 and 3 only).

USA/ /81 (MOD) **C. Characteristics to be provided for each group of frequency assignments for a satellite antenna beam or an earth or radio_astronomy station antenna**

Reason: Radio astronomy should be two words.

C.2 Assigned frequency (frequencies)

USA/ /82 MOD a) The assigned frequency (frequencies), as defined in No. 142, in kHz up to 28 000 kHz inclusive, in MHz above 28 000 kHz to 10 500 MHz inclusive and in GHz above 10 500 MHz.

Reason: To reinstate the explanation of units of frequencies as described in Appendix 3.

If the basic characteristics are identical, with the exception of the assigned frequency, a list of frequency assignments can be provided.

USA/ /83 MOD b) The centre of the frequency band observed, in kHz up to 28 000 kHz inclusive, in MHz above 28 000 kHz to 10 500 MHz inclusive and in GHz above 10 500 MHz.

Reason: To reinstate the explanation of units of frequencies as described in Appendix 3.

USA/ /84 MOD C.4 Class of station(s) and nature of service

The class of station and nature of service performed using the symbols shown in the Preface to the International Frequency List.

Reason: To indicate where the acceptable list of class-of-station and nature-of-service symbols can be found.

C.5 Receiving system noise temperature

USA/ /85 MOD a) For the case of a space station the lowest total receiving system noise temperature in kelvins, referred to the output of the receiving antenna of the space station.

Reason: To clarify that the value to be provided is the lowest value.

USA/ /86 MOD b) For the case of an earth station the lowest total receiving system noise temperature in kelvins, referred to the output of the receiving antenna of the earth station under clear sky conditions. This value shall be indicated for the nominal value of the angle of elevation when the associated transmitting station is aboard a geostationary satellite and, in other cases, for the minimum value of the angle of elevation.

Reason: To define the conditions under which the lowest value is determined.

c) For the case of a radio astronomy station, the overall receiving system noise temperature in kelvins, referred to the output of the receiving antenna.

C.6 Polarization

USA/ /87 MOD The type of polarization and, if appropriate, sense of polarization of the antenna, using symbols shown in the Preface to the International Frequency List.

Reason: To indicate where the acceptable list of polarization-type symbols can be found.

USA/ /88 SUP Indication as to whether consent is given to the general use of this information in determining the need for coordination with other satellite networks according to Appendix S8 of the Radio Regulations.

Reason: Consequential to USA/ /94, below.

C.10 Type and identity of the associated station(s)

The associated station may be another space station, a typical earth station of the network or a specific earth station.

a) For an associated space station, its identity.

b) For a specific associated earth station, the identity of the earth station and the geographical coordinates of the antenna site.

c) For an associated earth station (whether specific or typical):

USA/ /89 MOD 1) the class of station(s) and nature of service performed, using the symbols shown in the Preface to the International Frequency List;

Reason: To indicate where the acceptable list of class-of-station and nature-of-service symbols can be found.

2) the isotropic gain (dBi) of the antenna in the direction of maximum radiation (see No. 154);

3) the beamwidth in degrees between the half power points (describe in detail if not symmetrical);

4) either the measured radiation diagram of the antenna or the reference radiation diagram;

5) the lowest total receiving system noise temperature in kelvins referred to the output of the receiving antenna of the earth station under clear sky conditions when the associated station is a receiving earth station;

6) the antenna diameter (metres).

USA/ /90 MOD C.12 Required protection ratio

The minimum acceptable aggregate carrier-to-interference ratio, if less than 26 dB. The carrier-to-interference ratio is to be expressed in terms of the power averaged over the necessary bandwidth of the modulated wanted and interfering signals, assuming both the desired carrier and interfering signals have equivalent bandwidths and signal modulation types.

Reason: To insert text from Annex 2 of Appendix 30B which defines the carrier-to-interference ratio.

D. Overall link characteristics

D.2 Transmission gains and associated equivalent satellite link noise temperatures

For each entry under D.1:

USA/ /91 MOD a) The lowest equivalent satellite link noise temperature and the associated transmission gain. These values shall be indicated for the nominal value of the angle of elevation.

Reason: To define the conditions under which the values of equivalent satellite link noise temperature and transmission gain are determined.

USA/ /92 MOD b) The values of transmission gain and associated equivalent satellite link noise temperature that correspond to the highest ratio of transmission gain to equivalent satellite link noise temperature. The transmission gain is evaluated from the output of the receiving antenna of the space station to the output of the receiving antenna of the earth station.

Reason: To define the conditions under which the values of equivalent satellite link noise temperature and transmission gain are determined.

ANNEX 2B

USA/ /93 (MOD) Table of characteristics to be submitted for space and radio_astronomy services

Reason: Radio astronomy should be two words.

USA/ /94 MOD Polarization (item C.6) should be mandatory for all cases in Annex 2B.

Reason: Information required to determine which administrations are affected or which networks require coordination should be mandatory. Making polarization mandatory would help any administration in reducing the number of cases where any given proposal affects it, thereby reducing the number of comments under advance publication. Also, requiring polarization during the coordination phase could reduce the number of networks that exceed the threshold value for coordination. Polarization is a mandatory item for Appendices 30 and 30A.

USA/ /95 MOD Antenna gain (item C.10.c.2) should be mandatory, in conjunction with item C.10.c.4, for advance publication.

Reason: So that an administration can determine which reference radiation pattern should be applied. That is, the antenna gain is needed to determine the antenna-diameter-to-wave-length ratio.

USA/ /96 MOD The radiation pattern (item C.10.c.4) should be mandatory for advance publication.

Reason: To accurately determine which networks may be affected by a newly published satellite network, the off-axis antenna gain is needed for interference analyses. Providing this information at the advance publication phase could reduce the number of administrations commenting on the advance publication special section.

General:

Our proposals, in part, reintroduce text taken from the existing Radio Regulations (RR) back into the body of the RR. We believe that these improvements will help reduce the number of unnecessary coordinations.

APPENDIX S5

IDENTIFICATION OF ADMINISTRATIONS WITH WHICH COORDINATION IS TO BE EFFECTED UNDER THE PROVISIONS OF ARTICLE S9

USA/ /97 SUP Paragraphs 1 and 2.

Reason: Consequential to proposal to place this text in Article S9.

USA/ /98 MOD

3. For each of the frequency assignments to an individual station or to a satellite network mentioned in ~~paragraph 1 above~~ Nos. S9.X-S9.X, the level of interference shall be determined using the method referred to in Table S5-1, that is appropriate to the particular case.

Reason: Consequential to the suppression of paragraphs 1 and 2.

4. The assignment is considered to be affected, and coordination must be sought under the procedure of Article S9, if

a) the interference level exceeds the threshold level given in the Table S5-1, or

USA/ /99 (MOD) **b) the condition specified in the Table S5-1 is applicable (e.g., there is overlap between the frequency bandwidths).**

Reason: To correct punctuation.

TABLE S5-1

Technical conditions for coordination
(See Article S9)

USA/ /100 MOD The frequency-bands columns should include all frequency bands. If the bands are too numerous to practicably be included in Table S5-1, then they should be included in Appendix S5 as a supplemental table, e.g., Table S5-1B.

Reason: Table S5-1 should be a comprehensive source of information without having to resort to other documents or research to determine the applicability of this table.

USA/ /101 (MOD) In the cases of No. S9.7, S9.8, and S9.9; modify the calculation method column to read Appendix S8 instead of Appendix S29.

Reason: The calculation method pertains to the existing Appendix 29 which has been changed to Appendix S8 in the VGE Report.

USA/ /102 MOD In the case of No. S9.8, the expressions for determining the power flux-density (pfd) values (from Annex 4 of Appendix S30) should be included in the calculation method column.

Reason: The expressions from Annex 4 of Appendix S30 should be included in Table S5-1 to avoid unnecessary reference to another appendix to find the information.

USA/ /103 MOD In the case of No. S9.9, text should be added to the Remarks column as follows:

The threshold/conditions do not apply when the geocentric angular separation, between a transmitting space station in the fixed-satellite service and a receiving space station in the feeder-link Plan, exceeds 150° of arc and the free-space power flux-density of the transmitting space station in the fixed-satellite service does not exceed a value of -137 dB(W/m^2/MHz) on the surface of the Earth at the equatorial Earth limb.

Reason: The complete threshold/conditions (T/C) need to be included in No. S9.9. The above text takes into account all of paragraph 1 of Annex 4 to Appendix S30A.

USA/ /104 (MOD) In the case of No. S9.10, modify the calculation method column to read Appendix S8 instead of Appendix S29.

Reason: The calculation method pertains to the existing Appendix 29 which has been changed to Appendix S8 in the VGE Report.

USA/ /105 MOD In the case of No. S9.11, the pertinent ITU-R recommendation should be cited.

Reason: The specific ITU-R recommendation should be included in this Table to avoid unnecessary work in determining the correct ITU-R recommendation.

USA/ /106 MOD In the case of No. S9.14, we recommend "See Table S5-1A" be added to the T/C column.

Reason: Although "See Table S5-1A" appears in the Frequency bands and Remarks columns, we believe it is important to include it in the (T/C) column since the pfd values are listed in Table S5-1A.

USA/ /107 MOD In the case of No. S9.15, add two additional methods for determining earth station coordination areas, in addition to Appendix S7 and that for the radiodetermination-satellite service which have been identified, as follows:

1) The coordination area of aircraft earth stations is determined by increasing its service area by 1000 km vis-a-vis the aeronautical mobile service (terrestrial) or 500 km vis-a-vis terrestrial services other than aeronautical mobile.

2) For receiving earth stations in the meteorological-satellite service in frequency bands shared with the meteorological aids service, the coordination distance is considered to be the visibility distance as a function of the earth station horizon elevation angle for a radiosonde at an altitude of 20 km above mean sea level, assuming 4/3 Earth radius.

Reason: These additional methods are presently in the Rules of Procedure and should be included in this Table to avoid unnecessary reference to another document.

USA/ /108 MOD In the case of No. S9.15, delete "~~(See Appendix S5)~~" at the end of the remarks column.

Reason: Since this text is already in Appendix S5, it appears pointless to refer to Appendix S5.

Reference of Article S9	Calculation Method	Remarks
USA/ /109 MOD		
3.4 h) Non-GSO -		See also Table S5-1A[1]

---

[1] Coordination with the Fixed Service of an administration is not required in the bands 2160-2200 MHz or 2500-2535 MHz if

a) the frequency assignments recorded in the Master Register with a favourable finding with respect to S11.31, or not notified but in use or planned to be brought into use within the next 3 years, use analogue modulation and the pfd radiated over the territory of this administration into these frequency assignments does not exceed the thresholds in MOD RR 2566, or

b) the frequency assignments recorded in the Master Register with a favourable finding with respect to S11.31, or not notified but in use or planned to be brought into use within the next 3 years, use terrestrial

USA/ /110 MOD

3.4 j) ...coordination distance of 1000 km.2

Reason: To eliminate unnecessary coordination for some services meeting technical conditions. This incorporates improvements studied by the ITU-R into the coordination procedure.

As a consequential change to the U.S. proposal to make polarization a mandatory data element for all cases in Appendix S4, i.e., USA/ /94, the United States is proposing to modify Appendix S8. This proposal would incorporate by reference the earth station radiation patterns set forth in ITU-R Recommendation 465 in relation to those set forth in ITU-R Recommendation 731.

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digital modulation and the fractional degradation of performance caused into reference digital fixed service assignments located in the territory of this administration does not exceed the thresholds in MOD RR 2566, and

c) the application of the simulation (standard computation method described in ADD Appendix ZZZ) to reference fixed service frequency assignment located in the territory of this administration results in an interference level which does not exceed the limits indicated in [Doc. WP CPM/8].

Coordination with the Fixed Service of an administration is not required in the band 2483.5-2500 MHz if the frequency assignments recorded in the Master Register with a favourable finding with respect to S11.31, or not notified but in use or planned to be brought into use within the next 3 years, and the PFD produced at the earth's surface by emissions from space stations radiated over the territory of this administration into these frequency assignments does not exceed the following thresholds:

-150 dB(W/m^2) in any 4 kHz band for angles of arrival between 0 and 5 degrees above the horizontal plane;

-150 + 0.65(-5) dB(W/m^2) in any 4 kHz band for angles of arrival (in degrees) between 5 and 25 degrees above the horizontal plane;

-137 dB(W/m^2) in any 4 kHz band for angles of arrival between 25 and 90 degrees above the horizontal plane.

These limits relate to the power flux-density which would be obtained under assumed free-space propagation conditions.

[2] In the bands above 1 GHz, for those assignments to be made within the context of [ITU-R-IS-849], the coordination area is as determined therein.

APPENDIX S8

Method of Calculation for Determining if Coordination is Required

2.2.3 Consideration of polarization isolation

USA/ /111 MOD The polarization isolation factor described in this paragraph shall be ~~considered only if the administration responsible for each network has consented to such a course and has notified its polarisation or published it for~~ used to determine if coordination under No. ~~1060~~ 3.4.a (S9.7) is required. In this case, the apparent increase in the equivalent satellite link noise temperature shall be determined by the following expressions:

$$\text{Case I} \qquad \Delta T = \frac{\gamma \Delta T_s}{Y_u} + \frac{\Delta T_e}{Y_d}$$

$$\text{Case II} \qquad \Delta T = \frac{\gamma \Delta T_s}{Y_{ss}}$$

where the values of ΔT_s and ΔT_e are those given in §2.2.1 and §2.2.2 and the values of the factors of polarization isolation Y_u, Y_d and Y_{ss} are ~~those given in the table below~~ determined using the equations in ITU-R Recommendation 465 in relation to those in ITU-R Recommendation 731.

Reason: Consequential to USA/ /94.

USA/ /112 SUP

~~RESOLUTION No. 110 (Orb-88)~~

~~Improved Procedures for Certain Bands of the Fixed-Satellite Service Is Known~~

Reason: Consequential to USA/ /48.

USA/ /113 ADD

RESOLUTION No. USA-S10

Relating to the Possible Bringing Into Use of Article S10 under Certain Conditions once the Definitive Decision on VGE Recommendation No. 2/5 Is Known

The World Radiocommunication Conference (Geneva, 1995),

considering

a. that preceding conferences have developed plans;

b. that these plans may relate to assignments or to allotments;

c. that assignment and allotment plans fundamentally differ as to the complexity of their maintenance;

d. that, in addition to worldwide plans, regional plans exist catered to specialised needs in a particular part of the world;

e. that plans, by their nature, are dated;

considering in particular

a. that the Voluntary Group of Experts is to be commended for fostering the belief that a single plan modification procedure might suffice;

b. that the question of universal applicability of one procedure requires greater consideration than most;

noting

a. that most plans are accompanied by a dedicated procedure specifically catered to that plan's updating;

recognising

a. that in Recommendation No. 2/5 the VGE foresaw the possible treatment of that Recommendation at WRC-97 with respect to its possible applicability to the world plans of Appendices 30 and 30A;

b. that in like manner it foresaw the need to decide upon Recommendation No. 2/5 before treating the applicability of Article S10;

is of the opinion

that one universal plan modification procedure could contribute complications rather than enhance simplicity, and

is of the further opinion

a. that, for this reason, great care must be exercised before deciding upon this question;

b. that the answer thereto may depend, in part, upon whether the plan has been drawn up by a world radiocommunication conference or by a regional radiocommunication conference;

resolves

a. that this conference, in reviewing VGE Recommendation No. 2/4, has decided to incorporate the existing plan modification procedure for Appendix S25 within that Appendix, thereby rendering it self-contained for simplification of use;

b. that this conference, in reviewing VGE Recommendation No. 2/5, has decided to defer to a future world radio conference the question of whether Article S10 should be applied to the world plans of Appendices 30 and 30A;

c. that, consequential to the above and with regard to VGE Recommendation No. 2/6, no further action is required on Appendix S6, and the relevant provisions of Appendices 30 and 30A shall continue in force;

d. that this conference, in reviewing VGE Recommendation No. 2/7, has decided not to modify Appendices 26, 27 and 30B;

e. that the matter of one universal modification procedure for all plans, or all subsequent plans, has not matured for decision at this conference; and

f. that Article S10 appearing in Annex 1 be considered by future regional radio conferences or world radio conferences for possible application to future plans.

Reason: To act upon four VGE Recommendations.

Annex 1
to
RESOLUTION NO. USA-S10

	ARTICLE S10 [VGE Note 1]	General Statement applicable to the whole Article S10
	Procedure for Modification of a Frequency Allotment or Assignment Plan	This new Article S10 embodie the principles adopted by t VGE for drafting the Simplified Procedure especially: a) the means of identifying affect administrations; b) transparency in operation of t procedure; and
S10.1	4.1 For all world frequency allotment or assignment plans contained in Appendices to these Regulations, the Bureau shall maintain the master copies of the plans, incorporating any agreed modifications[VGE Note 7], and shall provide such copies in an appropriate form for publication by the Secretary-General when justified by circumstances.	
S10.2	4.2 Before notifying any assignment which is subject to a plan the administration shall ensure that it is in conformity with the plan.' If the assignment is not in conformity the administration shall apply the procedure[VGE Note 8] to effect an appropriate modification to the plan by seeking the agreement of the administrations, which are identified in accordance with **Appendix S6**, as having planned allotments or assignments which may be affected by the proposed modification.	c) automatic termination o the procedure with no ope end.
S10.2.1	4.2.1 An assignment is subject to a plan when it is for a station in a radiocommunication service and in a frequency band and in a geographical area covered by a plan. An assignment is in conformity with the plan, if it appears in the plan, or corresponds to an allotment in the plan, or if the procedure for modification of the plan has been successfully applied.	

[VGE Note 1] The scope of application of Article S10 to be decided by the WRC-95.

[VGE Note 7] Regional plans have legally different sources and status from the plans so far made by WARCs and attached as Appendices to the Radio Regulations. As such the regional plans are not open to any modification by a future world radio conference. It would NOT therefore be possible for the WRC-95 to modify the procedures of these regional plans. It would, however, be possible for the WRC to consider the potential value of the Simplified Procedures to these plans and to adopt Recommendations to the appropriate future regional conferences urging substitution, to the maximum feasible extent, of elements of the Simplified Procedures.

[VGE Note 8] The WRC-95 will need to decide whether this Article is to be applied to the Plans of Appendices 25, 30 and 30A. The VGE recommends that it should NOT be applied to the Plans of Appendices 26, 27 and 30B.

S10.2.2	4.2.2 Where an existing plan contains a supplementary or alternative procedure that procedure shall continue to be applied.	
S10.3	4.3 A proposed modification to a plan may consist of: a) a change in the characteristics of an entry in the plan; or b) the inclusion of a new entry in the plan; or c) the cancellation of an entry in the plan.	
S10.7	4.4 For the purposes of effecting a modification to a plan the administration concerned shall, having regard to the relevant provisions associated with the plan, identify the other affected administrations. It shall send to them a request for their agreement giving the relevant information listed in **Appendix S4** and shall send a copy to the Bureau. This action shall be taken within the time limits specified in the relevant appendix.	
S10.8	4.5 Whenever there is a requirement to apply the procedure of modification of a plan and to effect one or more related forms of coordination, the requests shall be appropriately identified and they shall as far as possible be sent and published simultaneously.	
S10.9	4.6 The Bureau, upon receiving a copy of the request under No. **4.4** shall: a) determine in accordance with **Appendix S6** the administrations whose allotments or assignments are considered to be affected; b) include their names in the information received under No. **4.4**; c) publish the complete information in its Weekly Circular; d) promptly inform all administrations affected of its actions and the results of its calculations, drawing their attention to the relevant Weekly Circular.	
S10.14	4.7 Following receipt of the Weekly Circular, an administration believing that it should have been included in the request for agreement shall promptly inform the requesting administration, giving its reasons for doing so, with a copy to the Bureau, and shall request that its name be included. The Bureau shall study this information on the basis of **Appendix S6** and the relevant Rules of Procedure and shall inform both administrations of its conclusions.	
S10.15	4.8 The administration seeking agreement and those with which it is sought, or the Bureau, may request any additional information they consider necessary. The Bureau shall be sent copies of any such requests and the replies.	
S10.16	4.9 Upon receipt of the request for agreement to the modification of the plan, the affected administration shall, within a period of four months from the date of publication of the relevant Weekly Circular, inform the requesting administration and the Bureau of its agreement[VGE Note 9] or indicate its disagreement with the reasons therefor.	

[VGE Note 9] It is assumed that the Rules of Procedure will provide for the case when an administration informs the Bureau that it is prepared to accept a level of interference exceeding that resulting from the plan.

S10.17	4.10 Any administration involved in this procedure may request the assistance of the Bureau in seeking agreement: a) when there has been no reply or decision within four months; b) in applying any step of this procedure; c) in carrying out any technical study necessary for the application of this procedure.	
S10.21	4.11 If, following action by the Bureau in response to a request for assistance under No. **4.10**, the Bureau receives no reply or decision within three months of its request for a decision in the matter from an administration whose agreement has been sought, the administration which requested the agreement shall be deemed to have fulfilled its obligations under this procedure. It shall also be deemed that the administration which did not give its decision has undertaken: a) that no complaint will be made in respect of harmful interference affecting the services rendered by its stations which may be caused by the use of the assignment in conformity with the proposed modification to the plan, and b) that its stations will not cause harmful interference to stations using the assignment in conformity with the proposed modification to the plan.	
S10.24	4.12 When the Bureau finds that this procedure has been concluded, either by obtaining the agreement of the administrations concerned or by the application of No. **4.11**, the Bureau shall up-date the master copy of the plan. *The new or modified entry in the plan shall then have the same status as others appearing in the plan and shall be considered as being in conformity with the plan.*	
S10.25	4.13 If no agreement is reached between the administrations concerned the Bureau shall carry out any study that may be requested by those administrations. The Bureau shall inform them of the results and of any recommendations it may be able to offer for a solution of the problem.	

S10.26	4.14 In the case of continuing disagreement the Bureau shall undertake a technical study under the Rules of Procedure. In the event of a favourable conclusion the proposed modification shall be entered in the plan with the indication that it shall be taken into account in any subsequent modifications to the plan.	
S10.27	4.15 When a proposed modification to a plan involves developing countries, administrations shall seek all practicable solutions conducive to the economic development of the radiocommunications systems of those countries.	

RECOMMENDED UNITED STATES PROPOSALS

Agenda Item 1

VGE - Task 3

United States of America

Proposals for Agenda Item 1

(Concerning Task 3 of the Report of the VGE)

Introduction: The United States, in general, supports the proposals of the VGE with respect to Task 3. The work under this task encompassed a broad range of topics under the rubric of "Operational and Administrative Provisions." These range from provisions having broad applicability (such as those in Chapter I) to provisions having applicability only to specific services (such as the aeronautical and maritime service provisions delineated in Chapters X and XI, respectively).

Some of the simplification of the Radio Regulations (RR) recommended by the VGE will be made possible through the use of a technique referred to as "Incorporation by Reference." In principle, this is an approach not unlike that used in the current RR, where external texts are referenced as part of selected regulatory provisions. What is different from the past, perhaps, is the scope -- or extent -- of the use of this approach proposed to be used in the simplified RR. We understand that concerns may exist about this approach; however, we believe that the VGE has been careful to take such concerns into account. Thus, our proposals related to this topic are quite limited. Nevertheless, we expect the WRC-95 to thoughtfully address any concerns raised. We believe that if the Conference upholds the following principles, many of the concerns should be satisfied:

a) Where it is intended that references within the RR to other texts (e.g., Recommendations of the ITU-R Study Groups) are to have the same treaty force as the RR, the linking provision should be unambiguous and cite the specific revision of the referenced document;

b) Consideration should be given to regularizing a process that would permit future WRCs to routinely consider updating references for texts cited within the RR.

We believe that the general approach to incorporation by reference is a sound one, but it is difficult to debate in an abstract or general sense. Thus, WRC participants should be encouraged to identify concerns and recommendations as precisely as possible to facilitate the work of the conference.

Our proposals are presented with the view toward improving the simplification already initiated by the VGE. Some may be characterized as editorial clarifications and others look toward reinstatement of provisions that are tried and proven.

Preamble and Chapter S1
Terminology and Technical Characteristics

Preamble

USA/ /1
SUP (S0.1-S0.10)

USA/ /2
NOC 1
(S0.11)

Reason: The principles and objectives that the VGE proposes to add to the Preamble are already contained in the ITU Constitution or Convention. The current preamble is all that is necessary, and repeating the material is contrary to the general approach taken by the VGE. A potential for developing a disparity in the wording of these principles is created if they are maintained in two separate treaty documents.

Article S1
Terms and Definitions

Section V. Operational Terms

USA/ /3
MOD **111**
(S1.117)

5.2 *Telegraphy*: ~~* A form of telecommunication which is concerned in any process providing transmission and reproduction at a distance of documentary matter, such as written or printed matter or fixed images, or the reproduction at a distance of any kind of information in such a form. For the purposes of the Radio Regulations, unless otherwise specified therein, telegraphy shall mean a form of *telecommunication* for the transmission of written matter by the use of a signal code.~~ A form of telecommunication in which the transmitted information is intended to be recorded on arrival as a graphic document; the transmitted information may sometimes be presented in an alternative form or may be stored for subsequent use.

Note: In this definition, a graphic document records information in a permanent form and is capable of being filed and consulted; it may take the form of written or printed matter or of a fixed image.

~~* Note by the General Secretariat: This definition is not in alignment with No. 1016 of the Annex to the Constitution. The corresponding definition in that Annex shall prevail to the extent that there are differences between them (see also Resolution 68).~~

Reason: To align the definition of telegraphy with the Constitution. According to CS provision No. 32, the terms in the Constitution take precedence over the Radio Regulations, and it seems unnecessary to continue the different texts, noting that Resolution 68 was suppressed by WARC '92. It is noted that VGE recommendations for RR MOD 116 (S1.122) - Facsimile, and RR MOD 117 (S1.123) - Telephony, are aligned with the Constitution.

CHAPTER SV
Administrative Provisions

Article S19
Identification of Stations

USA/ /4
NOC 2082

USA/ /5
NOC 2085

Reason: To restore provisions referring to Appendix 42

CHAPTERS
SVII - Distress and Safety Communications
SVIII - Aeronautical Services
SIX - Maritime Services
and Appendices

Article S30
General Provisions

USA/ /6
MOD N2930
(S30.4)

§4. The provisions specified in this Chapter are obligatory (see Resolution 331 (Mob-87)) in the maritime mobile service and the maritime mobile-satellite service for all stations using the frequencies and techniques prescribed for the functions set out herein (see also No. S30.5). However, stations of the maritime mobile service, when fitted with equipment used by stations operating in conformity with Appendix S13, shall comply with the appropriate provisions of that ~~Chapter~~ Appendix.

Reason: Corrects reference to Appendix S13.

Article S32
Operational Procedures for Distress and Safety Communications (GMDSS)

USA/ /7
MOD **N3110B** (S32.7.1)

§6. The Phonetic Alphabet and Figure Code in Appendix S14 and t~~T~~he abbreviations and signals in accordance with ITU-R Recommendation... (See [Annex AP 14]). ~~and the Phonetic Alphabet and Figure Code in Appendix S14~~ should be used where applicable.[1]

Reason: Maintain consistency of references to ITU-R Recommendations in Annexes. Also, references have been reversed to coincide with their relative porition within the Radio Regulations.

Article S47
Operators' Certificates

USA/ /8
MOD **3949bis**
TABLE
[AR55B]
Note 4
(S47.25)

Note 4 - Limited to the equipment required for ships sailing in {GMDSS Sea Area A1}, an area within the radiotelephone coverage of at least one VHF coast station in which continuous DSC alerting is available, as may be defined by a Contracting Government (see the International Convention for the Safety of of Life at Sea, 1974 as amended in 1988 and published in the Consolidated Edition, 1992, Chapter IV Regulation 2., Section 1.12. See also Resolution A.704(17)). ~~(VHF).~~

Reason: Define GMDSS Sea Area A1

Article S52
Special Rules Relating to the Use of Frequencies

USA/ /9
MOD **4196** (S52.13)

§9. (1) Bands exclusively allocated to the maritime mobile service between 4 000 kHz and 27500 kHz (see Article S5) are subdivided into the categories and subbands~~. Frequencies are to be assigned~~ as indicated in Appendix S17.

Reason: To eliminate the contradiction with other provisions, see for example 4323BI (S52.170), introduced by the VGE modification.

Article S58

USA/ /10
SUP

A66.1 [1]~~See Resolution 201.~~
(S58.1.1)

Reason: Reference in 5085 (S58.1) to existing regulations is adequate.

USA/ /11
SUP

A66.2 [2]~~See Resolution 334 (Mob-87).~~
(S58.1.2)

Reason: The work referenced within Resolution 334 has been completed and is embodied within the International Telecommunications Regulations.

APPENDIX S15
Frequencies for Distress and Safety Communications for the GMDSS

USA/ /12
MOD

2.0 Any emission capable of causing harmful interference to distress, alarm, urgency or safety communications on the frequencies denoted by an asterisk (*) is prohibited. ~~are guaranteed absolute protection from emissions capable of causing harmful interference (see No. S31.2).~~ Any emission causing harmful interference to distress and safety communications on any of the discrete frequencies identified in Appendices S13 and S15 is prohibited. ~~All frequencies listed, however, are protected from any emission causing harmful interference (see No. S31.2).~~

Reason: Eliminates the new and undefined concept of "absolute protection" and restores text to the original wording (e.g., RR 964 and N3067) while maintaining the VGE intent to eliminate repetition of the frequency lists.

USA/ /13
NOC

Appendix 42
Table of Allocation of International Call Sign Series[1]

Reason: To maintain the Table of Allocation of International Call Signs in the Radio Regulations. (See also USA/ /4 and USA/ /5.)

Section I

RECOMMENDED UNITED STATES PROPOSALS

Agenda Items 2.2, 2.3, & 3b)

Space Services

Document No. USA-
10 May 1995

United States of America

Proposals for Agenda Item 2.2

Power Limits for Earth Stations in the Space Science Services in the Band 2 025-2 110 MHz

Introduction: WARC-92 modified the status of the space operation, space research and Earth exploration satellite services in the band 2 025-2 110 MHz from Article 14 to primary. WARC-92 did not, however, specify any e.i.r.p. limits for earth stations in these services. This raised some concern since the band is shared with the fixed and mobile services. Under WRC-95 Agenda Item 2.2, the reference e.i.r.p. limits may be considered.

Radio Regulations Article 28 (S21), No. 2541 (S21.8) provides e.i.r.p. limits for earth stations in frequency bands between 1 and 15 GHz. Radio Regulation (No. 2547(S21.12)) explicitly lists services and associated bands for which the limits apply. The space science services are not listed for the 2 025-2 110 MHz band.

Ad Hoc Working Party 7B/9D was established to study various sharing conditions, including suitable e.i.r.p. limits for the space services earth stations in the 2 025-2 110 MHz band. At the November 1994 meeting of the ad hoc JWP, it was decided that the power limits given in No. 2541 are appropriate to apply to earth stations operating in the 2025 - 2110 MHz band. Similarly, the CPM Report to WRC-95 concludes that the e.i.r.p. limits of earth stations in the 2 GHz ranges should as stated in RR 2541. The U.S. therefore proposes to apply the limits in No. 2541 to the space services in the 2 025-2 110 MHz band.

Article 28 (S21)

Section IV. Limits of Power Flux-Density from Space Stations

USA/ /1
MOD 2547
(S21.12)

(8) The limits given in No. 2541 apply in the following frequency bands allocated to the fixed-satellite service, the earth exploration-satellite service, and in particular the meteorological-satellite service, the space operations service, the mobile-satellite service and the space research service for transmission by earth stations where these bands are shared with equal rights with the fixed or mobile service:

2025 - 2110 MHz

5670 - 5755 MHz . . .

Reason: To establish power limits for Earth stations in the Earth exploration-satellite, space research, and space operation services in the 2025-2110 MHz band.

Proposals for Agenda Item 2.3

13.75-14.0 GHZ Band and Resolution No. 112

Introduction: Resolution 112 called for studies, with respect to the values given in No. 855A(S5.502) of the Radio Regulations relating to allocations in the band 13.75-14 GHz and to report the outcome at least one year before the next competent conference. ITU-R Task Group 4-4 was formed to perform the necessary studies. This task Group completed its studies and confirmed the values given in No. 855A (S5.502). Recommendation ITU-R S. [DOC. 4/210] was developed and approved by the ITU-R which provides further detail with respect to the sharing of the fixed-satellite service with the radiolocation and radionavigation services.

Resolution 112 also called for studies with respect to the technical compatibility between the primary allocation to the fixed-satellite service (Earth-to-space) and the secondary allocations to the space research and Earth exploration-satellite services. ITU-R Task Group 7-3 was established to study this compatibility taking into account the time frames given in No. 855B (S5.503). Task Group 7-3 developed protection criteria for the secondary services. Task Group 4-4 considered constraints which would apply to the fixed-satellite service to meet these protection criteria within the time frames given in No. 855B (S5.503). The two Task Groups, in close consultation, developed two companion Recommendations; ITU-R S.[DOC. 4/211] and ITU-R SA 1071. These Recommendations have been approved by ITU-R and provide further technical details with respect to the compatibility between the fixed-satellite services and these secondary services.

The CPM Report addresses WRC-95 Agenda Item 2.3 "to review Resolution No. 112 in light of the results of studies carried out in application of that Resolution and take appropriate action". The CPM concluded that all necessary studies have been performed and the results of these studies, including mutually satisfactory criteria, are contained in the above ITU-R Recommendations. The "appropriate action" with respect to Agenda Item 2.3 is given in the proposals below.

Article 8(S5)

USA/ /1
MOD **855A** (S5.502)

In the band 13.75-14 GHz, the e.i.r.p. of any emission from an earth station in the fixed-satellite service shall be at least 68 dBW, and should not exceed 85dBW, with a minimum antenna diameter of 4.5 metres. In addition the e.i.r.p., averaged over one second, radiated by a station in the radiolocation and radionavigation services towards the geostationary orbit shall not exceed 59dBW. ~~These values shall apply subject to review by the CCIR and until they are changed by a future competent world administrative radio conference (see Resolution 112).~~ (see Recommendation ITU-R S.1068 [vers xx] for additional information).

Reason: Now that the Radiocommunication Sector has confirmed the values in RR 855A (S5.502), it is no longer necessary to retain the tentative text. The cited Recommendation contains more detalied information for assessing interference.

USA/ /2 **MOD 855B** (S5.503)

In the band 13.75-14 GHz geostationary space stations the space research service, for which information for advance publication has been received by the ~~IFRB~~ Bureau prior to 31 January 1992, shall operate on an equal basis with stations in the fixed-satellite service, after that date new geostationary space stations in the space research service will operate on a secondary basis. Until 1 January 2000, stations in the fixed-satellite service shall not cause harmful interference to non-geostationary space stations in the space research and Earth exploration-satellite services; after that date these non-geostationary space stations will operate on a secondary basis in relation to the fixed-satellite service. (see Recommendations ITU-R S. 1069 and ITU-R SA. 1071.

Reason: To reflect the Recommendations adopted by the Radiocommunication Sector.

USA/ /3
SUP

Resolution No. 112
Allocation of Frequencies to the Fixed-Satellite Service
in the Band 13.75-14 GHz

Reason: It is no longer necessary to keep Resolution No. 112 as the work envisioned under that resolution has been completed.

APPENDIX 2

WRC-95 AGENDA

INTERNATIONAL TELECOMMUNICATION UNION

COUNCIL

GENEVA — 1994 SESSION — (2 - 17 MAY)

Document C94/149-E
16 May 1994
Original: English

PLENARY MEETING

RESOLUTION
(as adopted at the fourteenth Plenary Meeting)

R. 1065 WORLD RADIOCOMMUNICATION CONFERENCE (WRC-95), 1995

The Council,

noting

that Resolution 1 of the World Radiocommunication Conference (Geneva, 1993)

a) resolved to recommend to the Council that a world radiocommunication conference be held in Geneva in late 1995 for a period of four weeks,

b) recommended its agenda, and invited the Council to establish it,

c) invited the Council to make provisions for WRC-95 and to initiate as soon as possible the necessary consultation;

resolves

to convene a World Radiocommunication Conference (WRC-95) in Geneva from 23 October to 17 November 1995, with the following agenda:

1. to review the final report of the VGE, and to consider related proposals from administrations, in order to undertake, as appropriate, a revision of the Radio Regulations and to provide a timetable for the implementation of outstanding recommended actions;

2. on the basis of proposals by administrations and the report from the Conference Preparatory Meeting:

2.1 with a view to facilitating the use of frequency bands allocated to the mobile-satellite services and with due regard to existing services to which the frequency spectrum to be considered by the Conference is also allocated:

a) review the technical constraints associated with the frequency bands allocated below 3 GHz to mobile-satellite services and associated provisions, resolutions and recommendations;

b) review the date of entry into force of allocations in the bands 1 980 - 2 010 MHz and 2 170 - 2 200 MHz in Regions 1 and 3 and the bands 1 970 - 2 010 MHz and 2 160 - 2 200 MHz in Region 2;

c) consider allocations and regulatory aspects for feeder links for the mobile-satellite services taking account of the interference that may be caused to satellite systems in the geostationary-satellite orbit;

2.2 to consider power limits for earth stations in the Earth exploration-satellite, space research, and space operation services in the band 2 025 - 2 110 MHz;

● For reasons of economy, this document is printed in a limited number of copies. Participants are therefore kindly asked to bring ●

2.3 to review Resolution 112 in the light of the results of studies carried out in application of that Resolution and take appropriate action;

3. to consider the following items, taking into account the work carried out by the study groups and the Conference Preparatory Meeting of the Radiocommunication Sector, with a view to WRC-97 taking action, as appropriate:

a) Appendices 30 and 30A for Regions 1 and 3 in response to Resolution 524 (WARC-92), and taking particular account of *resolves* 2 of that Resolution and with due regard to the advantage of taking into account, where practicable, the orbital arcs of Appendix 30B;

b) Resolution 712 (WARC-92);

c) the availability of the newly allocated HFBC bands;

d) requirements for the MSS and associated feeder links and, if necessary, adopt in 1995 limited allocations;

4. to consider such consequential changes and amendments to the Radio Regulations as may be necessitated by the decisions of the Conference;

5. in accordance with Resolution 94 (WARC-92), to review those resolutions and recommendations of world administrative radio conferences which are relevant to *resolves* 1 and 4 above with a view to their possible revision, replacement or abrogation;

6. in accordance with Article 7 of the Convention (Geneva, 1992):

6.1 to consider and approve the report of the Director of the Radiocommunication Bureau on the activities of the Radiocommunication Sector since the last conference;

6.2 to recommend to the Council the agenda for the 1997 World Radiocommunication Conference, and to give its views on the preliminary agenda for the 1999 Conference and on possible agenda items for future conferences;

6.3 to identify those items requiring priority action by the radiocommunication study groups,

invites administrations

when preparing and submitting their proposals to WRC-95 relating to the simplification of the Radio Regulations or to matters relating to the agenda contained in this Resolution, to base them as far as practicable on the recommended texts in the final report of the VGE,

instructs the Director of the Radiocommunication Bureau

to make the necessary arrangements to convene meetings of the Conference Preparatory Meeting in accordance with decisions of the Radiocommunication Assembly, (Geneva, 1993), and to prepare a report to WRC-95,

instructs the Secretary-General

1. to make all the necessary arrangements, in agreement with the Director of the Radiocommunication Bureau, for the convening and holding of the Conference;

2. to communicate this Resolution to concerned international and regional organizations.

APPENDIX 3

Preparation for International Telecommunication Union World Radiocommunication Conferences

Second Notice of Inquiry in IC Docket 94-31, released January 31, 1995

Comments (March 6, 1995)

1. American Mobile Satellite Corporation
2. American Radio Relay League, Incorporated
3. Association of Public-Safety Communications Officials-International, Inc.
4. Association of American Railroads
5. Association for Maximum Service Television, Inc., *et. al*
6. AT&T Corp.
7. COMSAT Mobile Communications
8. COMSAT World Systems
9. Constellation Communications, Inc.
10. CTA Commercial Systems, Inc.
11. E-SAT, Inc.
12. ESD USA, Inc.
13. Final Analysis Communication Services, Inc.
14. GE American Communications, Inc.
15. Hughes Space and Communications Company, *et. al*
16. Iridium, Inc.
17. Intelligent Transportation Society of America
18. Leo One USA Corporation
19. Loral/QUALCOMM Partnership, L.P.
20. Motorola, Inc.
21. National Academy of Sciences
22. National Oceanic and Atmospheric Administration
23. Personal Communications Industry Association
24. Orbital Communications Corporation
25. STARSYS Global Positioning, Inc.
26. Teledesic Corporation
27. TRW, Inc.
28. United States Satellite Broadcasting Company, Inc.
29. UTC

Late Comments

30. Mobile Communications Holdings, Inc.

Reply Comments (April 14, 1995)

1. Aerospace and Flight Test Radio Coordinating Council
2. Alcatel Network Systems, Inc.
3. American Mobile Satellite Corporation

4. American Petroleum Institute
5. American Radio Relay League
6. Association of American Railroads
7. Association for Maximum Service Television, Inc.
8. AT&T Corp.
9. CellularVision
10. COMSAT Mobile Communications
11. COMSAT World Systems
12. Constellation Communications, Inc.
13. CTA Commercial Systems
14. GE American Communications, Inc.
15. Harris Corporation - Farinon Division
16. Hughes Space and Communications Company, *et. al*
17. Iridium, Inc.
18. Leo ONE USA Corporation
19. Loral/QUALCOMM Partnership, L.P.
20. Motorola, Inc.
21. National Oceanic and Atmospheric Administration
22. Orbital Communications Corporation
23. PanAmSat Corporation
24. Telecommunications Industry Association - Network Equipment Division
25. Teledesic Corporation
26. TRW, Inc.
27. United States Satellite Broadcasting Company, Inc.
28. UTC

Late Comments

29. Alcatel Network Systems Inc., *et. al*
30. American Mobile Satellite System
31. American Petroleum Institute
32. American Radio Relay League, Inc.
33. COMSAT Corporation
34. CTA Commercial Systems, Inc. *et. al*
35. Hughes Corporation
36. Mobile Marine Radio, Inc.
37. Motorola Inc. and Iridium, Inc.
38. National Academy of Sciences
39. Paging Systems, Inc.
40. Phonic Ear, Inc.
41. ProNet, Inc.
42. Texas Instruments, Inc.
43. Terrestrial Mixed Microwave Services Manufacturers and Users
44. Teledesic Corporation
45. Waterway Communications System, Inc.

SEPARATE STATEMENT OF

COMMISSIONER RACHELLE B. CHONG

Re: *Preparation for International Telecommunications Union World Radiocommunication Conferences, IC Docket No. 94-31*

It is with great pleasure that I support the recommendations we make today for the 1995 World Radiocommunication Conferences of the International Telecommunications Union ("WRC-95"). I write separately to emphasize my support for the efforts of the United States at WRC-95 to improve the international spectrum allocations and related measures necessary for the introduction of a global Mobile Satellite Service ("MSS"). If we are successful, these actions will advance implementation of low earth orbit and other MSS networks which have the potential to provide worldwide, cost efficient voice and data mobile communications services. These satellite networks are expected to play a key role in the development of a Global Information Infrastructure.

In the past year, I have had the honor of representing the United States at a number of international telecommunications conferences. As I discussed issues with delegates from around the world, it became apparent to me that many countries, especially developing countries, are as enthusiastic about the promise of MSS services as we are. We can garner their support. To do so, I believe it is imperative that the United States listen carefully to the legitimate concerns of other world representatives and affirmatively seek a global perspective when we adopt communications policies.

U.S. telecommunications companies are some of the world's leaders in developing new innovative technologies -- particularly satellite technologies. These technologies have the potential to better the lives of all people by providing basic telecommunications and data services to people regardless of location, improving the economic productivity for nations, improving access to knowledge and social services, and increasing cultural understanding. As regulators, we must sweep away outdated barriers to full deployment of new communications technologies in order to realize this exciting potential.

The recommendations adopted in this item are, in large part, designed to reduce barriers to mobile satellite technology. It is my hope that our representatives will be able to persuade others at the WRC-95 to recognize the potential such services have to offer and adopt world policies to facilitate deployment of innovative communications systems.